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ABSTRACT

Reading is one of the disciplines that can be meaningful in integrating mathematics and science. One way to consider the connection between children's literature and mathematics is to consider how fictional literature might influence a child's thinking about the issues that are involved in the scientific enterprises. This document presents resources related to that issue in three sections. The first section answers the question of how to find information on children's literature and lists some resources. The second section presents and explains teacher resource materials for using children's literature in mathematics and science separately. Finally, the third section lists and summarizes children's literature books for mathematics and science. (ASK)

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Volume 4, Issue 5, 1997

ENC FOCUS

For Mathematics and Science Education

ED 414 188

Using Children's Literature in Math and Science

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ENC Focus
Using Literature in Math and Science

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About ENC Focus

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ENC Focus
Using Literature in Math and Science

Children's Literature Across the Curriculum

by Janet Hickman
Associate Professor of Children's Literature
College of Education
The Ohio State University

Not very long ago it might have seemed odd to be talking about literature and science and math in the same breath. I used to ask classroom teachers taking my graduate course in Children's Literature Across the Curriculum to read an article about that issue written by a former editor of *Scientific American*, Dennis Flanagan.[1] He wrote about the scientific culture and the literary culture, how for so long they were in some kind of apparent war with one another, and how that division is a false one. To make his point, Flanagan quoted Nabokov: "There is no science without fancy, and no art without facts."

I think one of the really encouraging things now is to see how many educators realize that literature and science have everything to contribute to each other. There are a couple of ways to look at this in terms of children's literature.

One is that within the body of work designated as children's literature, there is a good bit that really is science literature, or as John McPhee phrases it, "the literature of fact." Some of it is not strictly nonfiction, but it is, in its function, informational. I think that getting to know that body of material is one of the most important things that teachers can do.

The other way to think of the connection between children's literature and mathematics and science is to consider how fictional literature might influence kids' thinking about the issues that are involved in the scientific enterprises. A prime example is the writing of Jean Craighead George.[2] A naturalist by training, she tells gripping stories that are centered in ecological mysteries and in issues that have to do with relations of humans to the natural world. And all of her stories are supported with a sound knowledge base.

In our graduate course on informational children's books, one of our goals is to get teachers better acquainted with the wealth of books they have to choose from. Typically, they comment, "I never knew that informational books were so interesting; I never knew that they were so appealing; I never knew that there was this much available." Traditionally, teachers have relied on textbooks for content material. On the other hand, some people who are true lovers of children's literature often don't consider informational books a part of that literature and so they haven't taken the opportunity to read very many of them.

Literature and Mathematics

There is considerable tension, I think, in regard to tying literature to math because the abstract facets of mathematics make it particularly difficult to write about in the terms of a children's book. Certainly, mathematics is not an area about which very much is written in the fictional realm, although *Carry on Mr. Bowditch*, the 1956 Newbery Medal winner by Jean Lee Latham, tells the story of an uneducated seaman who mastered the mathematics used to compute a sailing ship's navigation.

Fortunately, there are a number of nonfiction or quasi-nonfiction books about mathematical concepts. Especially at the primary level, there are counting books, books about number concepts, and books that require mathematically based thinking. For older children, there are a few biographies about people who have made contributions in mathematics.

I have seen some encouraging changes in the relationship between children's literature and mathematics. Ten years ago, I could not find a professional book that presented a mathematical take on children's books, but now there are several major educational publishers who have been paying some attention to the topic. This is a sign of stretching, of beginning to see the connections.

Using Children's Books in Mathematics and Science Class

I tell the teachers taking my class that any good book that fits a content area should be usable in multiple ways. If it is a good book, it ought to trigger different kinds of ideas that might be classroom friendly.

Janet Hickman writes books for children and young adults, including the Boston Globe-Horn Book Honor winner, Jericho *(Greenwillow, 1994). She is also co-author, along with Charlotte Huck, Susan Hepler, and Barbara Z. Kiefer, of the comprehensive text* Children's Literature in the Elementary School *(Sixth Edition, Brown & Benchmark, 1997).*

Another rule of thumb for the use of children's literature is that generally two books are better than one. Encouraging students to make comparisons between books helps them understand the content of each separate book better. Such comparisons give students the opportunity to sharpen their critical judgments. It seems to me that comparing two science books about similar topics is a kind of science activity in itself.

Occasionally, the format or content of a book will inspire a teaching idea or a lesson approach. This is because every writer of an informational book has to develop an organizing principle for that book, as well as a hook for getting the child-reader's attention. Oftentimes, as a teacher, you can capitalize on this.

Some children's authors make wonderful connections among subject areas in their books. Since curricular integration is one of the guiding principles of most elementary school instruction (and it seems to me that this principle is moving up through the grades), taking advantage of the way books present their material in an embedded context can be very useful in the classroom.

Selecting the Best

Certain criteria for excellence, such as clarity and good organization, apply to any informational book. With a bit of thought and practice, classroom teachers can quickly become adept at judging these attributes.

However, if a primary criterion is accuracy and authenticity in a book that is to be used for instructional support, then the selector's lack of expertise is problematic. I think that many elementary school teachers have some concerns in the area of book selection because very few of them are experts in mathematics or science. One of the first things I recommend to teachers is to look for evidence in the book that the content has been checked by some expert in the field.

I also encourage teachers who do not feel qualified to judge a book's accuracy and authenticity to look at the review journals, several of which are mentioned in this issue of *Focus*. But as we all know, that's really very hard when you have taken a classroom of kids to the library and you are standing with them trying to help them choose books. In such situations, I suggest that teachers look for simple things like publication dates and who reviewed the manuscript, which is usually in the fine print in the front—or sometimes in the back—of the book.

One thing I emphasize is use of the *Horn Book Guide*, simply because it deals with more titles than the review journals—it covers everything that the publishers chose to provide for review in a particular year. Also, the *Guide* lists books by series, and sometimes that is useful for teachers.

Of course, there are other book-selection criteria that are important for teachers. A book could be up-to-date, totally clear, well organized, and accurate but might really bomb in the classroom, and so teachers also need to look for elements of reader appeal.

One aspect of reader appeal is age appropriateness, but that is a hard call to make with informational books. Teachers need to be aware that a child's interest or desire to know about a topic frequently overrides the other markers for age appropriateness. Young children can go to a book that is apparently very difficult, but whatever information they can get from the pictures or from an adult reading them the captions may be very meaningful to them. On the other hand, older students may pick up a book that may seem too simple just because it is the only one available on a topic of importance for them.

In book selection, the important thing for teachers is to be able to look at a book and decide how it measures up in comparison with others of its kind. Teachers who want to learn to judge science books and apply selection criteria really ought to look at a lot of science books.

One teacher in the Children's Literature Across the Curriculum course went a bit further with the regular assignment on comparing books. She decided she had learned so much that she would ask her sixth graders to do the same. And so they went to their school library, picked sets of books about the same topic, and wrote recommendations to the librarian about which ones should be weeded. Then the class described the kinds of books that they would like to acquire. I think the point here is that teachers can learn to make judgments about book quality and then extend that knowledge to children to help them make those same kinds of judgments. What better way to develop students' critical thinking abilities?

Notes:

[1] Flanagan, Dennis. (1974). To each generation its own rabbits. *Wilson Library Bulletin*, 49 (2), 152–156.

[2] Books by Jean Craighead George include Newbery Medal winner *Julie of the Wolves* (Harper & Row, 1972) and Newbery Honor winner, *My Side of the Mountain* (Dutton, 1959).

Suggested Professional Readings

The following bibliography is based on one developed by Ohio State University Professors Janet Hickman (author of the Introduction on pages 2–3) and Evelyn Freeman for a graduate course in Children's Literature Across the Curriculum. Since the course is usually taken as a professional development activity by practicing classroom teachers, the bibliography reflects the needs and interests of that group.
Note: This information is provided as a courtesy; the titles are not available from the ENC collection, but should be accessible at libraries.

Books

Anderson, P.M. (1994). *Reading and Writing Non-Fiction.* Schenectady, NY: New York State English Council. (Distributed by National Council of Teachers of English)

Burke, E. & Glazer, S. (1994). *Using Nonfiction in the Classroom.* New York: Scholastic.

Carr, J. (1982). *Beyond Fact: Nonfiction for Children and Young People.* Chicago: American Library Association.

Carter, B. & Abrahamson, R.F. (1990). *Nonfiction for Young Adults: From Delight to Wisdom.* Phoenix, AZ: Oryx Press.

Cullinan, B. (1993). *Fact and Fiction: Literature Across the Curriculum.* Newark, DE: International Reading Association.

Freeman, E.B. & Person, D.G. (1992). *Using Nonfiction Trade Books in the Elementary Classroom: From Ants to Zeppelins.* Urbana, IL: National Council of Teachers of English.

Graves, D. (1989). *Investigate Nonfiction.* Portsmouth, NH: Heinemann.

Green, P. (1992). *A Matter of Fact: Using Factual Texts in the Classroom.* Armadale, Victoria, Australia: Eleanor Curtain.

Hearne, B. & Kaye, M. (1981). *Celebrating Children's Books: Essays on Children's Literature in Honor of Zena Sutherland.* New York: Lothrop, Lee & Shepard.

Kobrin, B. (1995). *Eyeopeners II: Children's Books to Answer Children's Questions About the World Around Them.* New York: Scholastic.

Meltzer, M. (1994). *Non-fiction for the Classroom.* New York: Teachers College Press.

Thiessen, D. & Matthias, M. (1991). *The Wonderful World of Mathematics: A Critically Annotated List of Children's Books in Mathematics.* Reston, VA: National Council of Teachers of Mathematics.

Whiten, D.J. & Wilde, S. (1992). *Read Any Good Math Lately? Children's Books for Mathematical Learning, K–6.* Portsmouth, NH: Heinemann.

Zarnowski, M. (1990). *Learning about Biographies: A Reading-and-Writing Approach for Children.* Urbana, IL: National Council of Teachers of English.

Articles in Journals and Books

Chatton, B. (1989). Using literature across the curriculum. In J. Hickman & B. Cullinan (Eds.), *Children's Literature in the Classroom: Weaving Charlotte's Web.* Needham Heights, MA: Christopher-Gordon, 61–70.

Crook, P.L. & Lehman, B.A. (1991). Themes for two voices: Children's fiction and nonfiction as 'whole literature.' *Language Arts, 68,* 34–41.

Cullinan, B.E. & Galda, L. (1994). Chapter 9: Biography; Chapter 10: Nonfiction. *Literature and the Child* (Third Ed.). Orlando, FL: Harcourt Brace.

Doiron, R. (1994). Using nonfiction in a read-aloud program: Letting the facts speak for themselves. *The Reading Teacher, 47,* 616–624.

Farest, C. & Miller, C.J. (1995). Lewis and Clark: An incredible journey into the world of information books. *The New Advocate, 8*(4), 271–288.

Fisher, L.E. (1988). The artist at work: Creating nonfiction. *The Horn Book, 64,* 315–323.

Freedman, R. (1994). Bring 'em back alive: Writing history and biography for young people. *School Library Journal, 40*(3), 138–141.

Freeman, E.B. (1995). Supporting children's learning: Informational books across the curriculum. In M. Sorensen & B. Lehman (Eds.), *Teaching with Children's Books: Paths to Literature-Based Instruction.* Urbana, IL: National Council of Teachers of English, 188–196.

Greenlaw, J. (1992). Interacting with informational books. In B.E. Cullinan (Ed.), *Invitation to Read: More Children's Literature in the Reading Program.* Newark, DE: International Reading Association, 40–47.

Horowitz, R. & Freeman, S.H. (1995). Robots versus spaceships: The role of discussion in kindergartners' and second graders' preferences for science text. *The Reading Teacher, 49*(1), 30–40.

Huck, C., Hepler, S., Hickman, J., & Kiefer B. (1997). Chapter 10: Biography; Chapter 11: Informational Books. *Children's Literature in the Elementary School* (Sixth ed.). New York: Brown & Benchmark.

Leal, D. (1993). Storybooks, information books and informational storybooks: An explication of an ambiguous grey genre. *The New Advocate, 6,* 61–70.

Malloch, J. & Malloch, I. (1994). Planning for literature across the curriculum. In J. Hickman, S. Hepler, & B.E. Cullinan (Eds.), *Children's Literature in the Classroom: Extending Charlotte's Web.* Norwood, MA: Christopher-Gordon, 135–147.

McClure, A. (1982). Integrating children's fiction and informational literature in a primary reading curriculum. *The Reading Teacher, 35,* 784–789.

McClure, A. & Zitlow, C. (1991). Not just the facts: Aesthetic response in elementary content area studies. *Language Arts, 68,* 27–33.

Norton, D.E. (1991). Chapter 12: Nonfiction: Biographies and Informational Books. *Through the Eyes of a Child: An Introduction to Children's Literature* (Third Ed.). New York: Merrill.

Pappas, C. (1993). Is narrative "primary"? Some insights from kindergarteners' pretend readings of stories and information books. *Journal of Reading Behavior, 22*(5), 97–129.

Robb, L. (1994). Second graders read nonfiction: Investigating natural phenomena and disasters. *The New Advocate, 7*(4), 239–252.

Sanacore, J. (1993). Supporting a literature-based approach across the curriculum. *Journal of Reading, 37,* 240–244.

Short, K. & Armstrong, J. (1993). Moving toward inquiry: Integrating literature into the science curriculum. *The New Advocate, 6*(3), 183–199.

Spink, J.K. (1996). The aesthetics of informational reading. *The New Advocate, 9*(2), 135–149.

Sutherland, Z. & Arbuthnot, M.H. (1991). Chapter 12: Biography; Chapter 13: Informational Books. *Children and Books* (Eighth ed.). New York: HarperCollins.

Teale, W.H. (1991). Nonfiction, language learning, and language teaching. *Language Arts, 68*(6).

Young, T. & Vardell, S. (1993). Weaving readers theatre and nonfiction into the curriculum. *The Reading Teacher, 5,* 396–406.

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Items Featured in This Issue

Pricing and ordering information were verified in September, 1997 and are subject to change.

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Other Review Sources	Grades	Price *	Page
The Wonderful World of Mathematics: A Critically Annotated List of Children's Books ...	PreK–6	$17.00	9
Find It! Science: The Books You Need at Lightning Speed	K–8	$189.00	9
Science & Children (March 1997)			10
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SECTION II Teacher Resource Materials for Using Children's Literature

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Title	Grades	Price *	Page
It's the Story that Counts: More Children's Books for Mathematical Learning, K to 6	K–6	$25.00	11
Math and Literature, Grades 4 to 6	4–6	$12.95	12
How to Use Children's Literature to Teach Mathematics	K–6	$8.50	13
Books You Can Count On: Linking Mathematics and Literature	K–6	$18.50	13
Afterwards: Folk and Fairy Tales with Mathematical Ever Afters	3,4	$12.95	14
Raps and Rhymes in Maths	PreK–2	$18.00	14
Math Through Children's Literature: Making the NCTM Standards Come Alive	K–6	$23.50	15
Using Rates and Scales	5,6	$19.95	16
Growing with Mathematics Kindergarten Sampler	K	$899.00	17
Exploring Algebraic Patterns Through Literature	5–8	$7.00	18
Literature and Algebraic Reasoning	K–4	$5.00	18
Integrating Mathematics and Literature in the Elementary Classroom	4,5	$7.00	19
My Travels with Gulliver	4–8	$65.00	19

SCIENCE

Title	Grades	Price *	Page
S.M.I.L.E.: Science, Math, Integrated Language Experiences	K–6	$10.00	20
Tide Pools and Coral Reefs	2–4	$9.95	21
Inventions	4–6	$9.95	21
Water Lab: Teacher's Guide	4–6	$21.90	22
Story Stretchers: Activities to Expand Children's Favorite Books	PreK, K	$19.95	23
Connecting Science and Literature	2–4	$12.95	23

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Exploring the World of Animals: Linking Fiction to Nonfiction	K–5	$24.50	24
Early Childhood Units for Science	PreK,1	$12.95	25
Keepers of Life: Discovering Plants Through Native American Stories . . .	K–9	$9.95	26
The Sierra Club Book of Weather Wisdom	4–6	$15.95	26
Once upon a GEMS Guide: Connecting Young People's Literature . . .	PreK–10	$31.50	27
Raccoons and Ripe Corn	PreK–3	$43.95	28
Bugs	K–2	$250.00	29
Deep Blue Sea	3–5	$285.00	29
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Section 1: How to Find Information About Children's Literature

Selecting Children's Literature

by Karen A. Plummer
ENC Catalog Coordinator

How can you learn about children's books? Where do you start? You could go to the local book store and browse through their offerings, glancing through the books themselves and reading dust jackets. In the best of all possible worlds, this would be wonderful; but, unfortunately, it's not practical. Who has that kind of time to spare? What bookstore has such a comprehensive selection of children's books that you wouldn't miss crucial titles?

So we turn from the primary source (the books themselves) to secondary selection aids, such as bibliographies, award-winner lists, "best of" lists, and so on. These sources are helpful for finding basic citations to works, sometimes organized by subject with annotations that provide a summary of the work. While these sources are useful, they don't always provide enough information for making choices. The principal selection aid used in libraries and media centers is the book review. Book reviews normally discuss a book's subject, style, quality, and suitability for a particular audience. Reviews may also provide publisher name, publication date (or proposed date), and price.

What is important when selecting the most useful review source for your situation? William A. Katz identifies six key points for evaluating review sources:

Scope: How many reviews are published per issue and what categories are covered (nonfiction/fiction, adult/young adult/children's titles, subjects, print/nonprint)?

Timeliness: What kind of a gap is there between publication of a title and the time it may be reviewed (pre-publication, or weeks, months, years after publication)?

Reviewers: Is a reviewer identified for each review? Do the reviewers have the appropriate qualifications for evaluating the books objectively? If reviewers are not identified, do you trust the reputation of the publication enough to consider its recommendations?

Recommendations: Does the review source balance favorable and unfavorable reviews? Does it only review what it considers the "best" in the field?

Comparison: Do the reviews compare the title under consideration with other similar resources in the same field?

Format: Does the review include information about the format of the book; pointing out indexes, appendices, bibliographies, and the importance of illustrations to the text? [1]

Specific Review Resources for Children's Literature:

1. *Appraisal: Children's Science Books.* (Cambridge, MA: Children's Science Book Review Committee, 1967–).
   Reviews are by science and children's literature experts from Harvard and New England Libraries. Children's science titles are rated for audience age and difficulty.

2. *Booklist.* (Chicago, IL: American Library Association, 1905–).
   In-house staff with library, publishing, and subject specialization backgrounds review all subject areas and all age ranges, generally four to six weeks after titles are published. *Booklist* covers only those titles it recommends, but does include some critical review of those titles.

3. *Bulletin of the Center for Children's Books.* (Chicago, IL: University of Chicago Press, 1947–).
   Reviews cover K–12 titles in all subject areas, with a focus on the elementary grades. Includes recommended and non-recommended titles.

4. *Horn Book.* (Boston, MA: Horn Book, 1924–).
   Reviews preK–12 titles in all subjects, grouped by age interest. Considered to be one of the top selection aids for children's literature. Also includes general articles on children's books.

5. *In Review: Canadian Books for Children.* (Toronto, Ontario, Canada: Provincial Library Service, 1967–).
   Critical reviews with definite recommendations for or against purchase. Focus is on titles published in Canada.

6. *School Library Journal.* (New York, NY: R.R. Bowker, 1954–).
   Reviews 2,500+ K–12 titles annually on all topics. Titles are usually reviewed one to two months after publication.

7. *Science Books and Films.* (Washington, DC: American Association for the Advancement of Science, 1965–).
   Critical reviews of science print and nonprint for all age levels (child through adult), focusing on titles likely to appeal to the public, not just experts/professionals in the field.

8. *VOYA (Voice of Youth Advocates).* (New Brunswick, NJ: Dorothy Broderick and Mary K. Chelton, 10 Landing Lane, 1978–).
   Focusing specifically on young adults, *VOYA* reviews print and nonprint titles.

Additional titles with reviews and/or articles focusing on mathematics, science, and connections to literature include:

1. *Mathematics Teaching in the Middle School* (Reston, VA: National Council of Teachers of Mathematics).

2. *Science & Children* (Arlington, VA: National Science Teachers Association).

3. *Science Scope* (Arlington, VA: National Science Teachers Association).

4. *Teaching Children Mathematics* (Reston, VA: National Council of Teachers of Mathematics).

For those with an Internet connection, David K. Brown has provided a great service for anyone selecting children's literature materials with his Web site, *The Children's Literature Web Guide: Internet Resources Related to Books for Children and Young Adults* (http://www.ucalgary.ca/~dkbrown/). This site includes a number of sections such as "Journals and Book Reviews" (including pointers to review sources online, such as *Booklist* and the *Bulletin of the Center for Children's Books*); "Resources for Teachers" and quick reference tools such as lists of children's book award winners and the *Doucette Index to K–12 Teaching Ideas for Literature: An Index to Books and Websites with Teaching Suggestions* (searchable by children's literature titles and authors/illustrators to retrieve citations or pointers to supporting non-fiction items). For more information about the site, see the abstract in the Internet Resources section on page 10 of this *Focus*.

References

[1] Katz, W.A. (1980). *Collection Development: The Selection of Materials for Libraries.* New York: Holt, Rinehart and Winston.

Searching ENC's Collection of Curriculum Resources

You can get to Resource Finder, ENC's online database of educational materials, from ENC's home page (http://www.enc.org/) by clicking on the magnifying glass in the main graphic or on the yellow search button at the top of the site. Three search engines are available for use: Simple Search, No Frames Enhanced, and Enhanced Search.

The Simple Search allows you to search using words, as well as grade level and cost. A sample Simple Search could include Literature AND Animals as Search Words, Grade K, and any cost. The return list includes resources with both "literature" and "animals" in the catalog records.

The No Frames Enhanced search allows you to better limit and define your search. In addition to word search, grade level, and cost, limiters such as Resource Type, Subject, and Standards are available. Lists of ENC's controlled vocabulary are provided. For instance, Resource Type includes words such as Children's Literature, Professional guides, and World Wide Web (WWW) resource. A sample search using No Frames Enhanced could have Literature, Integrated/Interdisciplinary (if you use more than one subject, the terms need to be separated by a comma) as Subject; K as Grade; and Professional guides as Resource Type. One of the resources in the return list is *Find It! Science: The Books You Need at Lightning Speed* (1995) published by Follett Software (see page 9 of this *Focus*). The Enhanced Search, which uses frames, features pop-up vocabulary lists.

You can also search by ENC number, a designation we assign to each resource to indicate where it is shelved in our repository. This number can be found in the upper left of the catalog record on your computer, or at the end of the abstract in *Focus*. You can search for specific records in Resource Finder by typing in the ENC number in the Search Words blank. For example, typing in ENC-008547 brings up the record for *Story Stretchers: Activities to Expand Children's Favorite Books* (1989), published by Gryphon House (see page 23). Also, when contacting ENC about a particular resource, be sure to refer to the ENC number.

For each item in a return list, an icon lets you know what kind of resource it is (for example, videotape, kit, or Web site). Each resource is followed by descriptive text that contains its title, grade range, cost range, and beginning of the abstract. Clicking on the title brings up the entire record, including the complete abstract, the table of contents, and any evaluations. Availability information is provided so that you can contact the vendor or publisher for more information or to purchase the item.

Grades PreK–6

The Wonderful World of Mathematics: A Critically Annotated List of Children's Books in Mathematics

1992

Publisher

National Council of Teachers of Mathematics, Inc. (NCTM)
Orders
PO Box 25405
Richmond, VA 23260-5405
E-mail: orders@nctm.org
Telephone: (703) 620-9840
Toll-free: (800) 235-7566
Fax: (703) 476-2970
http://www.nctm.org

1 text. Order # 422ENC **$17.00**
Note: 20% discount to NCTM members

Author

Edited by Diane Thiessen and Margaret Matthias

This resource book contains a critically annotated list of children's books in mathematics for grades preK–6. Each review includes the grade level along with descriptions of the book's content and accuracy, illustrations and their appropriateness, and information about the author's writing style. Reviews also indicate whether the book includes activities for the reader and whether it develops a single concept or multiple concepts. Books are categorized according to content, and some books are cross-referenced under more than one category. Vignettes detail how some of the books have been successfully used in classrooms. Each book is rated in terms of its usefulness for teaching mathematical concepts. Titles are rated as highly recommended, recommended, acceptable, or not recommended. (AM)
[ENC-001442]

Grades K–8

Find It! Science: The Books You Need at Lightning Speed

1995

Publisher

Follett Software Company
1391 Corporate Drive
McHenry, IL 60050-7041
E-mail: marketing@fsc.follett.com
Telephone: (815) 344-8700 ext. 7654
Toll-free: (800) 323-3397
Fax: (815) 344-8774
http://www.follett.com/

1 CD-ROM (Mac). Order # DM48001A
$189.00

Author

Project director, E. Wendy Saul; programmer, Eclipse Services; graphics, Eileen Shafer, Imaging Research Center (UMBC)

Evaluation information

This resource was reviewed for and included in the 1996 publication Resources for Teaching Elementary School Science *[ENC-001371], a listing of effective hands-on, inquiry-based curriculum materials for grades K–6.*

Funding

National Science Foundation (NSF)

Teachers and library media specialists can use this CD-ROM database to generate student enthusiasm for science by linking it with writing and reading. Goals include developing students' higher order thinking skills; promoting interaction between student, teacher, and library media specialist; and providing information on more than 3,000 award-winning science books. The database can produce bibliographies on a range of topics, selected by criteria such as type, author, keywords, and awards won. Also provided are descriptive reviews gathered from journals, with an emphasis on the books most requested by students. To obtain additional information about the titles in the program, the viewer may click on the following icons: Subjects, Kind of Book, Special Requests, Keywords, Quirky Subjects, Authors, Wonders, and Brainstorm. The graphics are easy to use and enable viewers to search for material in variety of ways; for example, a teacher can request a picture book on the environment with full-color photographs for intermediate readers. The program also offers entertainment functions such as the Wonder Button, which includes interesting science facts and allows the user to view the books that contain those facts. The user's manual provides detailed directions on how to set up and use the CD-ROM, as well as descriptions of all icon options available in the program and information about the books in the database. It also suggests methods for teaching with the program, ideas for creating a science-friendly classroom, and additional activities. (Author/CCM)
[ENC-007757]

Science & Children (Volume 34, Number 6)

The March 1997 issue of *Science & Children* provides teachers with ideas to integrate children's literature into the science curriculum. *Science & Children* is a periodical published eight times a year by the National Science Teachers Association (NSTA), and every March it presents the year's Outstanding Science Trade Books for Children, which are selected by the NSTA and the Children's Book Council (CBC). This year, the issue lists 44 books that enhance the teaching of science through the integration of literature. A second list highlights Spanish language books, and feature articles describe how the books can engage students or expand on content.

Science trade books can introduce students to a science concept, reinforce lessons, and frame scientific concepts. They can develop knowledge of scientific principles and improve reading skills. Examples include biographies of famous scientists, reference books on plants and animals, or poetry and fiction that illustrate scientific concepts. The 44 books selected for the "Outstanding" list are scored in six areas: substantial science content; clarity; accuracy; timeliness of information; presentation of significant science concepts; and freedom from gender, ethnic, and socioeconomic bias. The books are organized under anthropology, biography, Earth science, environment and ecology, integrated science, and life and physical sciences. The annotations briefly describe the book's content and indicate how it relates to specific National Science Education Standards.

"Libros de Ciencias en Espanol" is a list of recently published Spanish trade books and children's encyclopedias. These books are organized under biology, ecology, general science, and technology. The list also gives U.S. dealers of Spanish books for children and young adults.

An article by Peggy Daisy and Jocelyn Dabney presents ideas for incorporating reading and story telling into a study of trees. The authors use a multicultural approach that integrates biographies and story telling into the five stages of the learning cycle: engage, explore, explain, elaborate, and evaluate. For example, students are "engaged" through the story of Wingari Maathai, a Kenyan woman who won the 1991 Goldman Environmental Prize. Her story is told through an African chant, and the children repeat lines of the chorus. The second stage, "explore," connects the story to a hands-on plant growth activity. In the "explain" stage, children learn about soil erosion and conservation. The fourth stage, "elaborate," includes art, social studies, and mathematics projects. For "evaluate," the authors suggest ideas for authentic assessment.

In a related article, first grade teacher Betty Fowler shares her activity-based, thematic unit about trees and leaves. The unit includes art activities, writing ideas, and visits from scientists. A literature portion teaches science concepts through stories, poetry, and science books. In mathematics, children sort and classify leaves by creating a large Venn diagram and use it to separate leaves according to such traits as smooth or patterned edges, symmetrical or nonsymmetrical, and simple or compound. For each of these activities, the author provides detailed instructions for classroom use.

Lynda C. Titterington
ENC Science Abstracter

Internet Resources

Carol Hurst's Children's Literature Site
http://www.carolhurst.com

This Web site, designed for teachers of grades preK–9, is a collection of reviews of children's books and ideas for how to use them in the classroom. The Featured Books link contains books for kids with reviews, activities, links to related books and subjects on this site, and links to other online resources. The Review link connects to reviews of all the site's featured books and many other recommended books. In the Curriculum Areas section, visitors can find recommended activities and approaches for curriculum areas such as math and history that can be integrated with the language arts. This site was featured on ENC's May 1996 Digital Dozen list. [ENC-004512]

The Children's Literature Web Guide: Internet Resources Related to Books for Children and Young Adults
http://www.ucalgary.ca/~dkbrown/

This Web site was developed to gather and categorize the growing number of Internet resources related to books for children and young adults. Much of the information is supplied by parents and children, schools, and libraries, as well as commercial enterprises involved in the book world. This site also compiles book awards lists from a variety of print and electronic sources. The site provides information on discussion groups and resources for teachers and parents, along with lists of recommended books, reviews of films based on children's books, and Web access to authors. [ENC-009774]

Other notable Web sites:

Children's Literature Activities
http://www.owu.edu/~mggrote/pp/Child_Lit/child_lit.html

Children's Literature and Language Arts Resources
http://falcon.jmu.edu/~ramseyil/childlit.htm

Reading Rainbow
http://www.pbs.org:80/readingrainbow/index.html

Section II: Teacher Resource Materials for Using Children's Literature

This section contains ideas on how to use literature in math and science classrooms. What we have found valuable about literature—whether through photographs or cartoons, whimsical fiction or fact-filled stories—is that it connects students to other worlds that can be entered and explored. Literature provides a different avenue to learning, usually visual, often through narrative. Your students can find unusual problems, worthwhile projects and—perhaps most important—a springboard for generating their own math/science questions.

Grades K–6

It's the Story that Counts: More Children's Books for Mathematical Learning, K to 6

1995

Publisher

Heinemann Educational Books, Inc.
361 Hanover Street
Portsmouth, NH 03801-3912
Telephone: (603) 431-7894
Toll-free: (800) 793-2154
Fax: (800) 847-0938
http://www.heinemann.com

1 text: ISBN 0-435-08369-4; Order # 08369
$25.00

Author

David J. Whitin, Sandra Wilde

This book, meant for educators and administrators, illustrates how children's literature can play a powerful role in restoring story to the teaching and learning of mathematics. The authors posit that literature helps portray mathematics as it really is: a tool for helping us tell the stories of our lives. The first three chapters feature stories about how books have been used to explore mathematical concepts, how children's spontaneous reactions influence the way teachers use these books, and what the role of mathematical conversation is. In chapter four, children and teachers discuss their ideas of how literature can help develop mathematical understanding. In chapter five, two authors discuss what they are trying to accomplish in their mathematically oriented books. Chapter six presents books on the number system, statistics, and probability, while chapter seven explores the issue of multicultural themes and images in mathematical literature. Chapter eight describes mathematical books for adults, and chapter nine is a series of essays on several mathematical books for children. References are provided in several sections. (Author/KFR) [ENC-006422]

Related Resources

Also available from Heinemann Educational Books, Inc.:

Read Any Good Math Lately? Children's Books for Mathematical Learning, K to 6
Writing for educators and administrators, the authors of this book advocate using literature to integrate mathematics into the curriculum and to give children the same authentic experiences with math that they have with language, social studies, science, and the arts. The book suggests many trade books, both fiction and nonfiction, that support various mathematical topics such as fractions, estimation, and measurement. Examples are provided of teachers using these books in their integrated teaching. Readers are encouraged to see the examples not as activities to be copied but as illustrations that will hopefully lead to the open-ended exploration of using literature in math. Several reference sections are provided. [ENC-006423] (see above for contact information)

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Math and Literature, Grades 4 to 6

Grades 4–6

1995

Series: Math and Literature

Distributor

Cuisenaire Company of America, Inc.
Orders
PO Box 5026
White Plains, NY 10602-5026
E-mail: info@cuisenaire.com
Toll-free: (800) 237-0338
Fax: (800) 551-7637
http://www.cuisenaire.com

1 text: ISBN 0-941355-14-4; Order = EN501-036117
$12.95

Publisher

Math Solutions Publications

Author

Rusty Bresser

The third in the *Math and Literature* series, this book presents the idea that children's literature can be an effective vehicle for motivating students to think and reason mathematically. The authors believe that incorporating literature into mathematics instruction helps students experience the wonder that is possible in mathematical problem solving and allows them to see a connection between mathematics and the imaginative ideas in books. The series emphasizes the instructional technique of writing in the mathematics classroom. Writing supports learning by helping children sort out, clarify, and define their thinking; writing also provides an assessment opportunity that allows teachers to evaluate students' understanding of mathematics. Each book in the series describes classroom-tested ideas for linking mathematics and literature. Sample lessons are written as vignettes describing actual classroom occurrences, and each lesson includes examples of children's written work. In addition to problem solving, lessons involve students in many mathematical tasks including recognizing number patterns; understanding fractions, ratios, and proportion; and logical reasoning and mental computation. (Author/GMM) [ENC-007864]

Related Resources

ENC has other items of this series in its collection, including:

Math and Literature (K to 3), Book 1

Designed for teachers of grades K–3, this book features 10 sample lessons that model how books can be used to initiate problem-solving investigations. Other mathematical topics addressed in the lessons include: addition, counting, numeration, and number sense; grouping and division; and pattern recognition. Lessons also cover money, fractions and measurement, ratio, and proportion. A list names 21 additional children's books that can be used in mathematics lessons, with instructional ideas for each book. Complete bibliographic information is included for the children's literature used in the lessons. [ENC-007722] (see above for contact information)

Math and Literature (K to 3), Book 2

This second book in the series contains 21 sample lessons that cover mathematical concepts such as shape recognition, symmetry, graphing, logical reasoning, measuring, estimating, and using money. Lessons are also designed to help children become flexible in thinking about numbers and developing their number sense. The author includes ideas for using some of the books at different grade levels. Complete bibliographic information is included. [ENC-007730] (see above for contact information)

Grades K–6

How to Use Children's Literature to Teach Mathematics

1992

Publisher

National Council of Teachers of Mathematics, Inc. (NCTM)
Orders
PO Box 25405
Richmond, VA 23260-5405
E-mail: orders@nctm.org
Telephone: (703) 620-9840
Toll-free: (800) 235-7566
Fax: (703) 476-2970
http://www.nctm.org/

1 text. Order = 428ENC **$8.50**
Note: 20% discount for NCTM members
Text available online at
http://www.enc.org/reform/journals/ENC2285/2285.htm

Author

Rosamond Welchman-Tischler

Standards

NCTM Standards (1989)

This illustrated book explains how to use children's tales like *Stone Soup* (not included) to help students in grades K–6 grasp mathematics concepts such as graphing and measuring. The book contains brief summaries of several stories and suggestions for hands-on activities that connect each story with mathematics. The four general NCTM standards—mathematics as problem solving, mathematics as reasoning, mathematics as communication, and mathematical connections—underlie the book's interdisciplinary approach to mathematics teaching. Several uses of literature in mathematics instruction are described: to provide a context or model for an activity; to introduce manipulatives; to inspire a creative math experience; to pose an interesting problem; and to prepare, develop, or review a mathematics concept or skill. The book is written in nontechnical language and is designed to be directly applicable to the teaching of mathematics. (Author/DDD) [ENC-002285]

Grades K–6

Books You Can Count On: Linking Mathematics and Literature

1991

Publisher

Heinemann Educational Books, Inc.
361 Hanover Street
Portsmouth, NH 03801-3912
Telephone: (603) 431-7894
Toll-free: (800) 793-2154
Fax: (800) 847-0938
http://www.heinemann.com/

1 text: ISBN 0-435-08322-8; Order = 08322
$18.50

Author

Rachel Griffiths, Margaret Clyne

Teachers can use this book as a resource for a wide range of ideas for teaching mathematics through literature. The resources include a mathematical overview, background information, notes on classroom organization, and techniques for assessment and evaluation. Lesson outlines are based on 40 different stories and poems; each activity includes a synopsis, preparation for teaching, and mathematical aims. Readers are also provided with evaluation notes and suggestions for extension. The authors suggest books containing mathematical themes, such as size, classification, and spatial relations. In addition, books are listed according to topics, including writing, computation, pattern and order, and mass, weight, and volume. A list of further references is included. (Author/LDR) [ENC-007753]

Grades 3, 4

Afterwards: Folk and Fairy Tales with Mathematical Ever Afters

1997

Publisher

Cuisenaire Company of America, Inc.
Orders
PO Box 5026
White Plains, NY 10602-5026
E-mail: info@cuisenaire.com
Toll-free: (800) 237-0338
Fax: (800) 551-7637
http://www.cuisenaire.com

1 text: ISBN 1-57452-026-1, Order = EN501-036124 **$12.95**

Author

Peggy Kaye

Nine collections of multicultural fairy tales and folk tales are highlighted in this workbook, which also provides related math activities that involve thinking skills. The collections, which are drawn from all over the world, include trickster tales, humorous stories, and narratives of love, sacrifice, and bravery. Readers meet an evil magician, a wicked witch, a flying horse, and a clever giantess. Each tale is followed by four or more thought-provoking problems that focus on mathematical strategies and use manipulatives. In one tale, for example, a girl's kind heart and generous nature help her to escape from an evil witch. She decides to create a "spell repellent" so that she never has to worry about that witch again. The repellent must have exactly 100 centiliters of liquid composed of at least six different ingredients. To create the perfect repellent, she is faced with the problem of picking the right amount of each liquid. Most of the workbook's activities are printed on reproducible student pages. (Author/LDR) [ENC-009720]

Grades PreK–2

Raps and Rhymes in Maths

1991

Publisher

Heinemann Educational Books, Inc.
361 Hanover Street
Portsmouth, NH 03801-3912
Telephone: (603) 431-7894
Toll-free: (800) 793-2154
Fax: (800) 847-0938
http://www.heinemann.com/

1 text: ISBN 0-435-08325-2, Order = 08325 **$18.00**

Author

Compiled by Ann and Johnny Baker

This book is a collection of traditional and modern rhymes, riddles, and stories with mathematical themes. The material is intended to provide a break from formal activities, comprise the introduction or conclusion of a math lesson, or provide a source of enjoyment as children rap, dramatize, or vocalize the literature. In most sections, a rhyme, riddle, or story is presented along with several classroom-tested activities. For example, the piece "I Never Win at Parties" can be used to initiate discussion about fair and unfair/likely and unlikely events. After focusing on this aspect, children are asked to predict the likelihood of succeeding at the game. The students then play the game, discuss how many games should be played to make the process fair, and conduct an experiment. They record data and use it to write a report that represents their findings as fractions and pictographs. (Author/LDR) [ENC-006928]

Grades K–6

Math Through Children's Literature: Making the NCTM Standards Come Alive

1993

Publisher

Teacher Ideas Press
PO Box 6633
Englewood, CO 80155-6633
Telephone: (303) 770-1220
Toll-free: (800) 237-6124
Fax: (303) 220-8843
http://www.lu.com/tip

1 text: ISBN 0-87287-932-1 **$23.50**

Author

Kathryn L. Braddon, Nancy J. Hall, Dale Taylor

Standards

NCTM Standards (1989)

The familiar stories in this book are used to address mathematical concepts and to apply the idea that children learn through active involvement. The authors utilize the National Council of Teachers of Mathematics (NCTM) *Curriculum and Evaluation Standards for School Mathematics* (1989) as a base for the mathematics activities and feature children's literature that is widely available. The first part of the book gives an overview of mathematics education, and the second provides an overview of the first five NCTM mathematics standards for grades K–4. The remainder of the book explores children's books and related math activities for grades K–3 and 4–6 and correlates the material to the remaining NCTM standards for K–4. Supplemental books and references are suggested for further exploration. (Author/DDD) [ENC-002775]

Related Resources

ENC has other resources in its collection about using stories to engage mathematical learners, including:

Math Excursions K: Project Based Mathematics for Kindergartners
This book contains five theme-based units for kindergarten mathematics classrooms. Each unit revolves around a story in which the main character's dilemma serves as a springboard for teaching mathematical concepts. The units vary in difficulty but share a common format. Each one begins with several pages to help teachers organize and prepare. Next comes the story or lesson that establishes the central problem, followed by activities for the class to complete. Appendices contain necessary materials and blackline masters. [ENC-008070] Heinemann Educational Books, Inc., toll-free: (800) 793-2154

Connecting Math and Literature
Intended for use in primary classrooms, this book shows teachers how to use more than 40 selections of children's literature to introduce mathematical concepts. Each section briefly summarizes several literature selections, identifies the math concepts to be taught, and suggests connecting and extending activities. The text does not directly state how the mathematics relates to the literature selection; rather, the teacher is expected to make that connection explicit. Sections are organized by four mathematical strands: numbers, measurement, problem solving, and geometry. The book provides a bibliography, reproducible worksheets, and an answer key. [ENC-007288] Teacher Created Materials, Inc., toll-free: (800) 662-4321

BEST COPY AVAILABLE

Using Rates and Scales

1998

Grades 5, 6

Series: MathZones

Publisher

Great Source Education Group
Order Processing
181 Ballardvale Street
Wilmington, MA 01887
Telephone: (508) 661-1511
Toll-free: (800) 289-4490
Fax: (800) 289-3994
http://www.greatsource.com

1 teacher's guide: ISBN 0-669-44451-0; Order # C3-044451 **$19.95**

Author

Christine Losq, Robin Levy

Standards

NCTM Standards (1989)

This book provides activities and projects to help students understand how numbers work as a system. The *MathZones* series presents project-based learning activities that help students make sense of mathematics through hands-on experiences with manipulatives, literature-based problem solving, and journaling about their work. Because this book assumes that students learn from one another, it asks them to work in pairs or small groups to complete activities and to present their solution strategies. Lessons cover scales and proportions, expand student knowledge of whole number patterns, and develop algebraic thinking. Occasional literature-based lessons provide students with opportunities to connect new learning with prior knowledge. After reading *Hatchet* as a homework assignment, for example, students read maps to solve problems about the length of time required to travel from one city to another. Students are asked to explain, orally and in writing, their understanding of how to find coordinates, distances, and compass readings. Each lesson lists needed materials, objectives, and ideas for getting started and closing out the lesson. Also included are suggestions for journal writing, extension activities, teaching tips, discussion questions, and informal assessment ideas. Activity sets are accompanied by sections entitled "What Really Happened," which present actual student responses to the activities and/or samples of student work. Suggestions for assessment include an evaluation checklist to record each student's progress in the areas of math concepts, strategy development, and communications skills. Also provided are reproducible blackline masters and a bibliography. (Author/LDR) [ENC-009714]

Related Resources

ENC has other items in this series in its collection, including:

Understanding Geometry

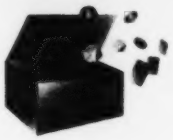
This book, intended for grades 3 and 4, provides activities that help students discover the basic principles of geometric figures. Children are encouraged to see connections between geometry and counting and geometry and measurement as they observe, for example, the architecture of a house, of a silo, and of a factory. After being introduced to vocabulary associated with geometric solids and reading *The Important Book*, for instance, groups of students are assigned a solid that is the focus of a poem they compose and compile into a class book. [ENC-009712] (see above for contact information)

Games for Number Sense

This book provides activities for grades 1 and 2 that focus upon number relationships. It contains lessons that use games to develop number meanings and number sense. The lessons are designed to help students understand the numeration system, and determine how numbers are used in real-world relationships. After reading the book *Frog and Toad Together*, students play the game Arise, Little Seed, which helps them recognize that each object has many attributes. [ENC-009708] (see above for contact information)

Grade K

Growing with Mathematics Kindergarten Sampler



1992

Series: Growing with Mathematics

Publisher

Mimosa Publications
Orders
90 New Montgomery Street, Suite 1414
San Francisco, CA 94126-6609
E-mail: info@mimosausa.com
Telephone: (415) 995-7150
Toll-free: (800) 646-6721
Fax: (415) 995-7155
http://www.mimosausa.com/

1 kindergarten kit: Order # 15881 **$899.00**
Note: Includes teacher's resource and activity file, discussion book (big book format), 24 student books, Mathtales *(8 big books, 48 small books, 8 audiotapes, and teacher's notes), discussion card kit and* Mathematics from Many Cultures.

Evaluation Information

The Australian, *Awards for Excellence in Educational Publishing [Overall winner]*

Standards

NCTM Standards (1989)

A language-based K–5 curriculum program, *Growing with Mathematics* contains multicultural and interdisciplinary activities that focus on communication in the math classroom. This kindergarten program integrates reading and writing with sorting objects, comparing size and shape, ordering events, and recognizing numerals. Arithmetic operations and patterns are also emphasized. Each grade level kit contains several components. A discussion book (in big book format) introduces the core mathematical concepts, while student workbooks provide follow-up activities. *Mathtales* story books (grades K–3) are short problem-solving stories to motivate children to talk and write about math. For example, one of 12 *Mathtales* books in this kit is called *Buzzing Bees*, which informally introduces subtraction through uniquely designed pages that illustrate "taking away." Included in each grade level kit is a volume of *Mathematics from Many Cultures* (a big book and posters), which features examples of mathematical concepts as implemented in world cultures. In this kindergarten volume, one page shows dolls from Guatemala, Russia, India, and Africa, and children are asked to compare and contrast the dolls. Each kit also contains a teacher's resource book that demonstrates the links to mathematics as well as the cultural emphasis for that grade level. It outlines suggested lessons, including an introduction, historical highlights, and discussion questions. Further resources include assessment ideas, extended activities, blackline masters, and a bibliography. For the higher grades, resource materials include practice and homework books; *Mathtastics* (grades 4 and 5), books that involve students in real-world problem solving; a discussion card kit; and manipulative kits. This series is available in Spanish and a French translation is in process. (Author/LDR/TAH) [ENC-009853]

► Related Resources

ENC has other items of this series in its collection, including:

Growing with Mathematics Fourth Grade Sampler
This program integrates reading and writing into the study of arithmetic operations, fractions, and numeration, as well as measurement and shapes. Students are asked to describe when the equinoxes and solstices occur and to determine the number of days between an equinox and a solstice. [ENC-009871] (see above for contact information)

Growing with Mathematics Third Grade Class Package
The focus is on arithmetic operations, number facts, numeration, fractions and shapes. One page displays various patterns from clothes, blankets, and bags. Students describe these patterns in terms of shapes and designs. [ENC-009870] (see above for contact information)

Growing with Mathematics Second Grade Sampler
The second grade program targets arithmetic operations, measurement, numeration, money, fractions, and shapes. One page displays Magic Squares, which can be traced back 4,000 years to China. Students are asked to describe patterns of the numbers in the squares and to find the magic number. [ENC-009872] (see above for contact information)

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Exploring Algebraic Patterns Through Literature

Grades 5–8

1997

Journal: Mathematics Teaching in the Middle School

Publisher

National Council of Teachers of Mathematics, Inc. (NCTM)
Orders
PO Box 25405
Richmond, VA 23260-5405
E-mail: orders@nctm.org
Telephone: (703) 620-9840
Toll-free: (800) 235-7566
Fax: (703) 476-2970
http://www.nctm.org/

1 back issue (Vol. 2, No. 4, Feb. 1997): **$7.00**

Author

Richard A. Austin and Denisse R. Thompson

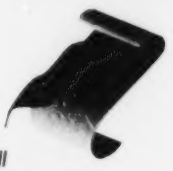
Standards

NCTM Standards (1989)

This article describes three literature-based activities that were used in grades 6 and 7. In these activities, *Anno's Magic Seeds* by Mitsumasa Anno was used to introduce patterns and then explore, describe, and extend those patterns, creating algebraic experiences in an interesting and non-threatening manner. The article describes each activity and includes the worksheets, as well as questions used to develop the lessons. The activities concern Jack and two magic seeds: if Jack eats one seed, he will not be hungry for an entire year; if he plants a seed, it will yield two new seeds for the next year. A sample question asks, if Jack plants both seeds the first year and for each successive year he eats one and plants the rest, how many seeds will he have at the end of one, two, and three years? As a result of these activities, students were able to express in their own words the meanings of a constant function, an exponential function, and a recursive function. The authors conclude that having students write about and extend the mathematical patterns in the story helps develop algebraic thinking about relationships that, in later years, will be explored in a formal algebra setting. (Author/LDR) [ENC-009854]

Literature and Algebraic Reasoning

Grades K–4



1997

Journal: Teaching Children Mathematics

Publisher

National Council of Teachers of Mathematics, Inc. (NCTM)
Orders
PO Box 25405
Richmond, VA 23260-5405
E-mail: orders@nctm.org
Telephone: (703) 620-9840
Toll-free: (800) 235-7566
Fax: (703) 476-2970
http://www.nctm.org/

1 back issue (Vol. 3, No. 6, Feb. 1997): **$5.00**

Author

Cheryl A. Lubinski and Albert D. Otto

Standards

NCTM Standards (1989)

Funding

National Science Foundation (NSF)

The authors of this article describe how the books *The Doorbell Rang* by Pat Hutchins and *One Hundred Hungry Ants* by Elinor Pinczes were used in a grade 1 and a grade 4 classroom, respectively, to develop students' algebraic reasoning. The authors discuss how, in both cases, the concepts were introduced through the literature, how the lessons played out in the classroom, and how the children responded. Transcriptions are included of actual conversations between teachers and individual students. This report concludes that opportunities exist for even primary-age students to experience algebraic reasoning with patterns and relationships and that children's literature is an effective vehicle to introduce algebra informally into the K–4 curriculum. (Author/LDR) [ENC-009846]

Grades 4, 5

Integrating Mathematics and Literature in the Elementary Classroom

1993

Journal: Arithmetic Teacher

Publisher

National Council of Teachers of Mathematics, Inc. (NCTM)
Orders
PO Box 25405
Richmond, VA 23260-5405
E-mail: orders@nctm.org
Telephone: (703) 620-9840
Toll-free: (800) 235-7566
Fax: (703) 476-2970
http://www.nctm.org/

1 back issue (Feb. 1993): **$7.00**

Author

Marlene Kliman

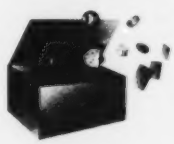
Funding

National Science Foundation (NSF)

This article describes how *Gulliver's Travels* has been integrated into a fourth grade math classroom. As they explore places, characters, and events described in the book, students actively measure, compare sizes, and work with scale, ratio, and proportion. After reading about the land of the giants, where the stairs consist of six-foot steps and a table extends 30 feet above the floor, students compare the sizes of these giant objects in that land with the sizes of objects in their own environment. Once a relationship is described, students construct scale drawings and models of the scenes they have read. Then students write stories about what they might experience if they were to explore giant land. Another option is to make comparisons by constructing life-size drawings of objects in giant land. This article also provides tips for developing activities and establishing environments that promote the incorporation of literature into mathematics classes. A sample tip suggests that the mathematics content correspond to the story line. (Author/LDR) [ENC-009843]

Grades 4–8

My Travels with Gulliver



1991

Series: Journeys in Mathematics

Publisher

Sunburst Communications, Inc.
Orders
101 Castleton Street
Pleasantville, NY 10570
E-mail: sungeneral@aol.com
Telephone: (914) 747-3310
Toll-free: (800) 321-7511
Fax: (914) 747-4109
http://www.nysunburst.com/

1 teacher kit: Order # 3100BG **$65.00**
Note: Individual student books available for **$3.75.**

Author

Developed by Education Development Center, Inc.; published by WINGS for Learning

Funding

National Science Foundation (NSF)

This classroom module, part of the *Journeys in Mathematics* series, has three main goals: for every student to develop an understanding of mathematics; for every student to develop problem solving skills; and for the class to become a community of mathematics learners. Each module provides a series of learning activities for three to six weeks of classes. Also included are a teacher's guide and all the materials needed to teach the lessons and assess students' progress. The modules encourage students to use mathematics to solve many types of problems, to gather and organize information, and to draw conclusions. This module, based on Jonathan Swift's classic novel *Gulliver's Travels*, integrates mathematics with reading, listening, writing, and drawing. The module is divided into three sections, each of which provides opportunities for students to integrate mathematics with creative writing and drawing activities. In one activity, for example, students make detailed drawings of objects from another land, determine the perimeters and areas of the objects, and explore the effect of a change of scale on perimeter and area. The module contains masters of transparencies, worksheets, and supplementary and extension activities, as well as assessment guidelines, an activity book, and an audiotape. (Author/KFR) [ENC-006488]

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Grades K–6

S.M.I.L.E.: Science, Math, Integrated Language Experiences

1997

Publisher

Nebraska Department of Education
Curriculum—Jim Woodland
301 Centennial Mall South
Lincoln, NE 68509-4987
Telephone: (402) 471-2446
Fax: (402) 471-0117
http://www.nde.state.ne.us/

12 modules: **$10.00**
Note: Non-resident price; free to Nebraska residents

Author

A joint project of the Nebraska Department of Education and the University of Nebraska–Lincoln

Funding

United States Department of Education (ED) Office of Educational Research and Improvement (OERI); Dwight D. Eisenhower National Mathematics and Science Education Program

This program, designed for students in grades K–6, is an integrated curriculum for teaching science and mathematics with literature and other subjects, such as geography and art. The book consists of 12 modules that cover topics such as flight, color, and insects. Each module includes a list of related children's literature titles, as well as science and math activities that complement one another. While reading the stories in class, students work on activities such as mapping and gridding an archaeology site, comparing the lengths of dinosaurs, and analyzing fingerprints. Modules also contain supplementary readings, teacher's notes, and ideas for assessment. (SSD) [ENC-009696]

➢ Related Resources

ENC has other items that address the integration of literature with mathematics and/or science instruction, including:

Mathematical Pathways Through Literature, Grade 6

Part of the *Mathematical Pathways Through Literature* series, this book contains 12 mathematics lessons, each of which focuses on one math concept and one children's book to help students make mathematical connections through literature. The explorations in each book include a lesson plan for the math investigation, a literature summary page, and two mathematical literature connections lessons to extend both the math investigation and the literature book. In this book, one sample lesson on exploring the calculator asks students to look for patterns when multiplying large numbers and powers of 10. An extension activity involves pairs of students in picking a problem involving numbers from selected pages of *The Sneaky Square and 113 Other Math Activities for Kids* by Dr. Richard Sharp and Dr. Seymour Metzner. [ENC-006182] Creative Publications, toll-free: (800) 624-0822

Grades 2–4

Tide Pools and Coral Reefs

1993

Series: Thematic Unit, Primary

Publisher

Teacher Created Materials, Inc.
Orders
6421 Industry Way
Westminster, CA 92683
Toll-free: (800) 662-4321
Fax: (800) 525-1254
http://www.teachercreated.com/

1 text: ISBN 1-55734-249-X; Order # TCM249
$9.95
1 set: Order # TCM1064 **$278.60**
Note: Set includes 28 volumes.

Author

Written by Jeanne King, edited by Patricia Miriani Sima; illustrated by Cheryl Buhler

This series, designed by teachers for grades 2–4, consists of whole-language thematic units with integrated hands-on activities that involve children in reading, writing, listening, observing, and acting. Each book in the series includes summaries of two children's books and provides related lesson plans and activities. Also included are activities that can be used across the curriculum, including language arts, math, science, social studies, music, and life skills such as physical education and cooking. Suggestions and patterns are provided for bulletin boards and unit management plans, as well as for group projects to foster cooperative learning. The books also include a culminating activity that requires students to synthesize their learning. The books highlighted in this unit are *A House for Hermit Crab* and *At Home in the Coral Reef*. In sample activities, students experiment with water by making waves and determining water weight, make a diorama of the ocean habitat, and do sand painting. For other activities, they draw sea animals, learn songs and sea recipes, and plan a festival about tide pools and coral reefs. Some of the activities include math problems, short answer questions, and multiple choice questions. Answers to the questions and a bibliography are provided at the end of the book. (Author/RA) [ENC-007276]

Grades 4–6

Inventions

1993

Series: Thematic Unit, Intermediate

Publisher

Teacher Created Materials, Inc.
Orders
6421 Industry Way
Westminster, CA 92683
Toll-free: (800) 662-4321
Fax: (800) 525-1254
http://www.teachercreated.com/

1 text: ISBN 1-55734-232-6; Order # TCM232
$9.95
1 Intermediate Thematic Units Set (23 volumes): Order # TCM1511 **$228.85**

Author

Written by Karen J. Goldfluss and Patricia Miriani Sima; illustrated by Keith Vasconelles, Theresa Wright, and Sue Fullam

The topic of this unit is inventions, and the books highlighted within it are *Steven Caney's Invention Book*, *Ben and Me*, and *Mistakes That Worked*. Throughout the unit, children learn about the three stages of invention: breadboard, model, and prototype. They also discuss the invention of the wheel and make poetry wheels, make a class book about famous inventors, and learn about knots. In additional activities, students create a new ice cream, invent with straws, and learn about Benjamin Franklin and his inventions. Interesting topics include the invention of roller skates, the history of the abacus, and the Braille alphabet. Students also experiment with making batteries, musical instruments, and frozen popsicles. Some of the activities include math problems, drawing, matching, and multiple choice questions. The book provides a bibliography and answers to the questions. (Author/RA) [ENC-007711]

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Water Lab: Teacher's Guide

Grades 4–6

1996

Series: Science, Technology and Reading (STAR)

Distributor

Kendall / Hunt Publishing Company
Orders
4050 Westmark Drive
PO Box 1840
Dubuque, IA 52004-1840
Toll free: (800) 770-3544
Fax: (800) 772-9165

1 text (includes mentor's guide); ISBN 0-7872-1459-0
$21.90

Publisher

Reading Is Fundamental, Inc.

Author

Designed by Michelle Haggart; illustrated by Paige Billin-Frye; STAR curriculum coordinator, Pat Drizd; Reading Is Fundamental, Inc.

Funding

Chrysler Corporation Fund; General Electric Fund

This series of books is part of a science and reading motivation program designed to supplement existing science curricula for the upper elementary grades. It is also intended to integrate science and technology with reading through a series of laboratory investigations. Each investigation explores topics in the natural and physical sciences and focuses on a genre of children's literature. A short, fictional narrative provides the context for the investigations, each of which features hands-on activities. In this unit, students learn about water science and read nonfiction books as a source of information. The unit's fictional narrative features a teacher named Ms. Holmes, who has just finished reading aloud *Paddle to the Sea* to her students. In the story, the students' questions about the journey of the Indian carving lead to an investigation of watersheds. STAR Lab students conduct investigations that parallel those in the narrative: they build a watershed model to demonstrate the links between land and water ecology and a solar still to extract fresh water from salt water. For the final activity, students work in teams to design, conduct, and present an original experiment that investigates an aspect of water science. The book provides a set of teacher's lab notes for each activity that includes an overview, learning objectives, background information, and a materials list, as well as expected results, discussion questions, and extension activities. Additional information includes laboratory management techniques, portfolio assessments, and suggestions for bringing career scientists into the classroom. The Lab Work section contains reproducible student pages, while the Resource section provides references to picture books, novels, and related nonfiction for grades 3–6, as well as an annotated bibliography of computer software and audiovisual materials. (Author/LCT) [ENC-004645]

► Related Resources

ENC has other items of this series in its collection, including:

Sports Lab: Teacher's Guide
In this unit's fictional narrative, students in Ms. Holmes' class participate in a city-sponsored sports clinic where they explore aspects of sports and fitness. Sample activities have students investigate the physics of a bouncing ball, learn how to take a pulse, and measure reaction speed. [ENC-004646] (see above for contact information)

Habitat Lab: Teacher's Guide
This unit touches on issues of keeping wildlife in captivity. In the narrative, the students simulate the natural habitat for a turtle found in the wild, but discover that they cannot truly provide for all of its needs. STAR Lab students examine the natural environment of their own school grounds and construct bottle habitats for earthworms, mealworms, and crickets. Students also experience the wild vicariously through survival novels. [ENC-004643] (see above for contact information)

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Grades PreK, K

Story Stretchers: Activities to Expand Children's Favorite Books

1989

Publisher

Gryphon House, Inc.
PO Box 207
Beltsville, MD 20704-0207
Telephone: (301) 779-6200
Toll-free: (800) 638-0928
Fax: (301) 595-0051
http://www.ghbooks.com/

1 text: Order # 10011 **$19.95**

Author

Shirley C. Raines and Robert J. Canady

This book contains 450 teaching ideas that are based on research in language development and emerging literacy. It connects 90 well-known children's books to learning centers in nature, science, mathematics, art, music, movement, and cooking. The authors have organized each of the book's 18 chapters around a common theme or unit taught in preschools, kindergartens, and child-care centers. Sample themes include families, counting, plants and animals, science and nature, seasons, and transportation. Five books have been selected for each theme and five extension activities are provided for each book. For example, extension activities for Eric Carle's *The Very Hungry Caterpillar* give students the opportunity to create tissue paper designs and butterflies and to make a simple graph comparing the numbers of children who would or wouldn't let caterpillars crawl on them. The books are introduced into the chapter with a photograph of the book cover and a description of the storyline. The storyline description is followed by a brief example of ways to expand the story during circle time. For each story stretcher, the book lists learning objectives, materials, and procedures, in addition to discussion questions, background information, and tips for guiding students' behavior. (Author/LCT) [ENC-008547]

Grades 2–4

Connecting Science and Literature

1991

Series: Connecting: Primary

Publisher

Teacher Created Materials, Inc.
Orders
6421 Industry Way
Westminster, CA 92683
Toll-free: (800) 662-4321
Fax: (800) 525-1254
http://www.teachercreated.com/

1 text: ISBN 1-55734-341-1; Order # TCM341
$12.95
1 Connecting set (8 books): Order # TCM948
$103.60

Author

Written by Deborah Plona Cerbus and Cheryl Feichtenbiner Rice; illustrated by Blanca Apodaca, Cheryl Buhler, Sue Fullman, Theresa Wright, and Keith Vasconcelles

Developed by teachers, this reproducible activity book is part of a series that integrates children's literature with science, mathematics, and other topics. This book provides strategies and activities for integrating early elementary science curriculum with more than 40 related children's literature selections. It is organized into four sections: Life Science, Earth Science, Physical Science, and Process Skills. Topics include the human body, machines, and weather, as well as dinosaurs, astronauts, and the water cycle. For each selection, the authors provide a description of the featured picture book, specific science concepts, and related poetry and music. Follow-up activities use various forms of expression, including graphing, experiments, writing, art projects, and science journals. For example, a lesson based on Eric Carle's *The Very Tiny Seed* asks children to use Carle's tissue paper collage technique to illustrate their own book about seeds or to create a life cycle chart that follows a seed through the four seasons. Appendices provide a format for science journals, a way to collect science poetry, and suggestions for research projects. Also included are a bibliography and an answer key. (Author/LCT) [ENC-007670]

Cultivating a Child's Imagination Through Gardening

Grades K–6

1996

Publisher

Teacher Ideas Press
PO Box 6633
Englewood, CO 80155-6633
Telephone: (303) 770-1220
Toll-free: (800) 237-6124
Fax: (303) 220-8843
http://www.lu.com/tip/

1 text ISBN 1-56308-452-X **$19.50**

Author

Nancy Allen Jurenka and Rosanne J. Blass

Organized around a gardening theme, this book uses children's literature to introduce students to multicultural literature, ecology, and the impact of plants on the environment. It also touches on world economics and politics. The book contains 45 lesson plans, each of which focuses on a specific book about gardening and offers activities designed to enhance creativity and build literacy skills. Chapters cover themes such as gardens around the world, plants, folk tales, and special herb, prehistoric, or native gardens. The book also introduces students to famous gardeners, including George Washington Carver and Beatrix Potter. Each lesson incorporates a book sharing time and activities that integrate gardening, language arts, and creative art. An added bonus is that every lesson includes a recipe for a treat. Lessons also feature a poetry reference, a word game, and a list of supplementary reading materials. Sample activities ask students to build a bird house, use landscape design templates and graph paper to design a garden, and identify endangered plants in their community. An annotated bibliography is also included. (Author/LCT) [ENC-008702]

Exploring the World of Animals: Linking Fiction to Nonfiction

Grades K–5

1997

Series: Literature Bridges to Science

Publisher

Teacher Ideas Press
PO Box 6633
Englewood, CO 80155-6633
Telephone: (303) 770-1220
Toll-free: (800) 237-6124
Fax: (303) 220-8843
http://www.lu.com/tip/

1 text ISBN 1-56308-517-8 **$24.50**

Author

Phyllis J. Perry

This book, part of the *Literature Bridges to Science* series, focuses on animals as pets, on the farm, and in the wild. The series uses several fictional works to introduce science topics to students, letting the power of the stories stimulate interest in learning more. Fiction is used to increase familiarity with the topic, enlarge background knowledge, and introduce vocabulary. Nonfiction works are then offered to students as they begin their topical explorations. This book provides detailed summaries of fictional works dealing with animals. For each work included, the book provides discussion questions, summaries of related nonfiction books, and ideas for multidisciplinary activities. Suggested activities for individuals, small groups, and large groups involve skills in research, language, science, math, geography, and the arts. Some of the book topics include household and exotic pets, farm animals, and the work of large-animal veterinarians. Other topics address endangered species, the effect of population growth on woodland animals, game reserves, and loss of rain forests. The book includes questions that link various fiction books with one another, as well as ideas for using picture books. Also provided is a list of other fiction and nonfiction books, selected magazines, and videos that could be used in the classroom. (Author/RA) [ENC-008975]

Grades PreK, 1

Early Childhood Units for Science

1993

Series: Early Childhood Units

Publisher

Teacher Created Materials, Inc
Orders
6421 Industry Way
Westminster, CA 92683
Toll-free: (800) 662-4321
Fax: (800) 525-1254
http://www.teachercreated.com

1 text. ISBN 1-55734-201-6; Order = TCM201
$12.95
1 Early Childhood Units set (10 volumes)
Order = TCM1088 **$127.50**

Author

Written by Deborah Plona Cerbus and Cheryl Feichtenbiner Rice, illustrated by Cheryl Buhler, Sue Fullam, and Keith Vasconcelles

Using a whole-language approach to learning science, this reproducible activity book is designed to help children learn about their world through literature and original poetry. Each unit begins with a children's literature selection that relates to a science topic. Units focus on well-known children's books such as *Leo the Late Bloomer*, which deals with growing and changing; *Hugo at the Window*, which deals with pets; *The Caterpillar and the Polliwog*, which deals with life cycles; and *The Tiny Seed*, which deals with seeds and plants. In addition, each unit contains related literature, sample lesson plans, games, and riddles, as well as creative writing, art projects, and songs. Additional resources include phonics activities, recipes, and activities that connect home and school. The book provides explanations describing what whole language is, advice for preparing a whole language classroom, and directions for setting up classroom centers. (Author/CCM/KSR) [ENC-007286]

Related Resources

ENC has other items of this series in its collection, including:

Seasons

Throughout this unit, children learn about the different seasons. Sample activities involve the students in decorating a tree to match the season, comparing leaves from different trees, and collecting pictures of different seasons. Students also experiment with frost and snow, learn songs and poems related to the season, and make snow cheese treats, mud pudding, and popcorn snowmen. The books highlighted in this unit include *The Seasons of Arnold's Apple Tree*, *Something Is Going to Happen*, *My Spring Robin*, and *When Summer Ends*. [ENC-007278] (see above for contact information)

Sea Animals

This unit teaches children about whales, animal life, and the sea itself. Students compare the human body to the whale's body and explore the variety of animal life in the sea, including those creatures with shells, spiny skins, fur, and fins. The unit discusses ways to play at the sea and includes activities for making puppets, finger painting, and sand drawing. Students are also given the opportunity to write an ocean chant and learn about seafood including the added treat of making tuna salad and salmon sandwiches. The books highlighted in this unit include *The Whales' Song* and *Animals of Sea and Shore*. [ENC-007279] (see above for contact information)

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Grades K–9

Keepers of Life: Discovering Plants Through Native American Stories and Earth Activities for Children

1994

Series: Keepers of Life

Publisher

Fulcrum Publishing
Suite 350
350 Indiana Street
Golden, CO 80401-5093
E-mail: fulcrumite@aol.com
Telephone: (303) 277-1623
Toll-free: (800) 992-2908
Fax: (800) 726-7112
http://www.fulcrum-resources.com/

1 teacher's guide: Order # ENC-1870 **$9.95**
1 student text: Order # ENC-3873 **$19.95**

Author

Michael J. Caduto and Joseph Bruchac; foreword by Marilou Awiakta; story illustrations by John Kahionhes Fadden and David Kanietakeron Fadden; chapter illustrations by Marjorie C. Leggitt and Carol Wood

This book and accompanying teacher's guide, third in the *Keepers of Life* series, are based on Native American life and culture. A collection of 18 stories and activities provides a program of study in botany, plant ecology, and the natural history of North American plants, ranging from algae to flowering plants. All North American habitats are included, from desert to seashore and from rain forest to alpine tundra. Each story is followed by a scientific discussion that covers plant taxonomy, evolution, and biomes; photosynthesis and energy flow; survival adaptations; and communities. The discussions also cover such environmental issues as global warming, acid rain, and endangered species. For example, a chapter on trees begins with a Seneca invocation and goes on to discuss speech making, seasonal ceremonies, and tree identification. In another chapter, students learn that a flower is an integral part of a field and that even a vacant lot is a community of plants, animals, rocks, soils, and water. One sample activity asks students to make larger-than-life models of soil fungi, roots, and other organisms that live in the soil and to use these models in a giant diorama. In another activity, students measure the height of a tree using a simple triangulation device. The teacher's guide provides an overview of the *Keepers* materials and a series of articles with background information about multiple intelligence theory, story-telling approaches to teaching, and Native American culture. (Author/LCT) [ENC-008194]

Grades 4–6

The Sierra Club Book of Weather Wisdom

1995

Publisher

Little, Brown and Company
Orders
200 West Street
Waltham, MA 02154
Toll-free: (800) 759-0190
Fax: (800) 286-9471
http://www.littlebrown.com/

1 text: ISBN 0-316-56341-2 **$15.95**

Author

Vicki McVey; illustrated by Martha Weston

This book, published by the Sierra Club for grades 4–6, shows young readers how to predict the weather by paying close attention to weather signs, such as wind, clouds, and animals' behavior. Using a conversational approach, the author includes dramatic stories, pencil illustrations, and hands-on activities to explain how the Earth's rotation and its orbit around the sun are linked to the seasons and climate. Also described is how atmospheric pressure is measured and how storms develop. Additional topics include the water cycle, energy, photosynthesis, and the ozone layer. Some of the activities invite students to keep a weather journal and build backyard weather stations that include rain gauges and barometers. In other activities, children create terrariums that simulate the Earth system, play a game to demonstrate solstices and equinoxes, and develop environmentally friendly weather protection. (Author/LCT) [ENC-007703]

Grades PreK–10

Once upon a GEMS Guide: Connecting Young People's Literature to Great Explorations in Math and Science

1994

Series: GEMS

Publisher

University of California, Berkeley
GEMS
Lawrence Hall of Science
Berkeley, CA 94720-5200
Telephone: (510) 642-7771
Fax: (510) 643-0309
http://www.lhs.berkeley.edu/

1 text: Order # GEM406 **$31.50**

Author

Jacqueline Barber, Lincoln Bergman, Kimi Hosoume, Jaine Kopp, Cary Sneider, and Carolyn Willard

Evaluation Information

This resource was reviewed for and included in the 1996 publication Resources for Teaching Elementary School Science *[ENC-001371], a listing of effective hands-on, inquiry-based curriculum materials for grades K–6.*

Funding

Apple Computer, Inc.; A.W. Mellon Foundation; Carnegie Corporation; Chevron USA; Hewlett Packard Company Foundation; McDonnell Douglas Foundation; National Science Foundation (NSF)

This handbook is part of Great Explorations in Math and Science (GEMS), a series of thematic units for grades preK–10 that helps students master mathematics and science content and process skills. This book, one of a series for educators, indexes literature selections and is organized three different ways: by specific GEMS guides (i.e., individual teacher's guides), by mathematics strands, and by science themes found throughout the series. The literature selections are chosen to emphasize multilevel connections between literature, science, and math. The guide also contains quotations, poems, and a resource section with information on associations and organizations that may help teachers further develop connections across the curriculum. Also available are a teacher's handbook, leader's handbook, and parent's guide. (Author/DEB/LCT) [ENC-004805]

Related Resources

ENC has many other GEMS resources in its collection, including:

Involving Dissolving: Teacher's Guide
Activities in this book, developed for grades 1–3, integrate literature and science with math. Students learn about the concepts of dissolving, evaporation, and crystallization. Using familiar substances, they create homemade gelatin, colorful translucent disks, and crystals on paper. [ENC-002793] (see above for contact information)

Tree Homes: Teacher's Guide
This guide, designed for preK–1, encourages appreciation for trees and the animals that live in them. Life science, math, and physical science concepts are presented in hands-on activities. The math concept of measurement is emphasized as the children compare sizes of boxes and toy animals. Logical thinking skills are developed as children classify the toy bears and other animals brought from home. [ENC-002607] (see above for contact information)

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Raccoons and Ripe Corn

Grades PreK–3

1991

Publisher

Great Plains National (GPN)
Orders
PO Box 80669
Lincoln, NE 68501-0669
E-mail: gpn@unl.edu
Telephone: (402) 472-2007
Toll-free: (800) 228-4630
Fax: (800) 306-2330
http://gpn.unl.edu

1 videotape + teacher's guide. Order # S77
$43.95

Author

Produced by Ronnie Krauss, directed by Larry Lancit, written by Andrew Gutelle, segment producer, Jill Gluckson, science consultant, Mary Budd Rowe

Funding

Carnegie Corporation, National Science Foundation (NSF), Corporation for Public Broadcasting (CPB), W.K. Kellogg Foundation

Series: Reading Rainbow: Science Comes Alive

This video, part of the *Reading Rainbow* series, features several books written and illustrated by naturalist Jim Arnosky. The series is designed to motivate young children to read good books and to visit their local libraries. Each video features an upbeat, magazine-format adventure that highlights a children's picture book and a medley of other segments related to the book's theme. Program segments take the viewer to theme-appropriate settings and supplement the book with animation, dramatizations, interviews, music, and book reviews, which are written and delivered by kids. The series is designed to foster positive scientific attitudes by integrating science into the grade school curricula. By reading books with a scientific theme, children explore new ideas, travel to new places, and learn how things work. In this video, host LeVar Burton travels to the Arnosky farm to learn how the author uses signs from nature as inspiration for his books. For example, teeth marks on twigs are a good sign that beavers are nearby, and a close look at tree trunks can yield signs of porcupine claw marks. The teacher's guide identifies the scientific concepts embedded in each program and provides interactive, hands-on activities for both home and classroom. Students make prints of animal tracks and create a variety of simple bird feeders to explore the food preferences of wild birds. A supplementary book list is also provided. (Author/LCT) [ENC-006436]

Related Resources

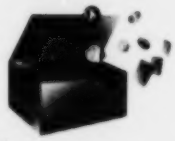
ENC has other items of the Reading Rainbow series in its collection, including:

Once There Was a Tree

The featured book on this video, developed for grades 1–4, is *Once There Was a Tree*, which weaves together the important relationship among all living things. It also discusses our dependence on trees for food, shelter, and the air we breathe. LeVar Burton explores the life cycle of trees in the forest and their importance to humans, animals, and the planet. Students are encouraged to adopt a tree in the school yard and to record changes in their tree over the school year. They also discuss ways in which a seemingly dead tree stump remains full of life. [ENC-005696] (see above for contact information)

Bugs

Grades K–2



1991

Publisher

Scholastic, Inc.
Orders
2931 E McCarty Street
Jefferson City, MO 65101
E-mail: CustServ@scholastic.com
Toll-free: (800) 724-6527
Fax: (573) 635-5881
http://scholastic.com

1 unit kit: Order # 65753 **$250.00**

Author

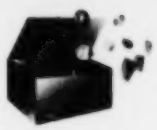
Scholastic, Inc.

Series: Scholastic Banners K–2: Red Themes

This kit, part of the *Scholastic Banners* program, contains a variety of children's books and activities that discuss bugs and insects. The program focuses on personal, social, and natural world themes. Students are encouraged to explore each theme through classic and contemporary literature and music, as well as through integrated science, math, social studies, geography, and language arts activities. The books in this kit include *Bugs*, a reference book with information on 16 different insects; *The Snail's Spell*, a book about the life of snails; *Ant Cities*, which provides illustrations and diagrams about ants; and *Backyard Insects*, which features realistic photographs of how insects camouflage themselves and scare their enemies. *Why Mosquitoes Buzz in People's Ears* is a folk tale from West Africa about a mosquito. *Anansi and the Moss-Covered Rock* describes a clever deer who outsmarts a spider, and *The Very Busy Spider* lauds a spider who works on its web and captures a fly. Each kit includes teacher plans for all books, a program guide, two big books, and audio cassettes of books and songs. A teacher theme folder provides a list of learning concepts, ongoing projects, and a culminating theme event. Teaching plans include tips, modeling strategies, process-oriented activities, and assessment ideas. The program guide describes the entire *Banners* program and provides instructional plans, guidelines for evaluation and assessment, and a list of resources. (Author/RA) [ENC-003011]

Deep Blue Sea

Grades 3–5



1993

Publisher

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Jefferson City, MO 65101
E-mail: CustServ@scholastic.com
Toll-free: (800) 724-6527
Fax: (573) 635-5881
http://scholastic.com

1 unit kit: Order # 56688 **$285.00**

Author

Scholastic, Inc.

Series: Scholastic Banners 3–5: Purple Themes

This unit of the *Scholastic Banners* program focuses on students as thinkers and researchers capable of formulating and answering questions. In addition to social studies, language arts, science, and math, students explore music, art, and movement. Books in the kit include *Shark Lady*, which describes scientist Eugenie Clark's contributions to the study of the undersea world; and *Exploring the Titanic*, which examines the tragedy of the *Titanic* and demonstrates how advanced technology helps unravel the mysteries of the deep. Another book, *The Bell Reef*, describes how people are working with dolphins to understand oceans and the effect humans can have on the oceans' ecosystems. *Reef Comes to Life* describes the construction of a realistic replica of a coral reef at the New England Aquarium. Each kit includes literature sets, a theme digest, a teacher's theme guide, and theme banners. The literature sets cover a variety of literary genres, provide opportunities for oral and written responses, and include activities for integrated learning. The theme digest explores each topic, using a variety of illustrations and feature articles, interviews, and hands-on activities. The teacher's guide provides a read-aloud literature selection, suggested mini lessons, and assessment ideas. (Author/RA) [ENC-003014]

Habitats and Ecosystems

Grades 2–5

1996

Publisher

Newbridge Educational Publishing
Orders
PO Box 6002
Delran, NJ 08370-6002
Toll-free: (800) 867-0307
Fax: (609) 786-4417

1 complete set: Order # 04863 **$179.00**
Note: Complete set includes 5 big books, six 5-packs of student books, 5 teaching guides, and 1 storage bag. Resources may be purchased individually. Contact vendor for further information.

Author

Newbridge Communications, Inc.

Standards

National Science Education Standards (NSES) (December 1995)

Series: Ranger Rick Science Spectacular

The materials in this kit, designed for students in grades 2–5 and part of the *Ranger Rick Science Spectacular* series, describe five major ecosystems of the world and the amazing ways that plants and animals survive in them. Developed in cooperation with the National Wildlife Federation, the kit includes big books and student books with color photographs and text that cover the five ecosystems. Also included in the kit are the teaching guides that go with each book. The ecosystems studied in this unit include the polar region, the rain forest, coral reef, the African savannah, and the desert. Sample photographs feature a tiny Elf Owl inside a Saguaro cactus, the migration of African wildebeests, and a pod of Narwhals. The teacher's guide for each book presents detailed background information on the ecosystems, along with numerous activities keyed to different subject areas such as science, social studies, and writing. Activities include examining seasonal changes and light variations in the polar regions, making a coral reef alphabet book, and estimating the heights of tall trees. The guides also provide worksheets and ideas for stimulating critical and creative thinking, in addition to a list of supplemental resources. (SSD) [ENC-009527]

Systems

Grades PreK–2

1997

Publisher

Newbridge Educational Publishing
Orders
PO Box 6002
Delran, NJ 08370-6002
Toll-free: (800) 867-0307
Fax: (609) 786-4417

1 complete set: Order # 05663 **$245.00**
Note: Complete set includes 5 big books, six 5-packs of student books, 5 sets of discussion cards, 5 teaching guides, and 1 storage bag. Contact vendor for further information.

Author

Newbridge Communications, Inc.

Standards

Project 2061 (1985); National Science Education Standards (NSES) (December 1995)

Series: Newbridge Early Science Program

This kit, part of the *Newbridge Early Science Program*, is designed for students in grades preK–2 and describes a range of systems, from the human body to the ecosystems of a pond. The intent is to encourage students to discover how parts of a whole work together. The kit includes big books and student books with photographs and simple text that cover each of five topics. Also included are discussion cards, and teaching guides that go with each book. The five topics include the human body, spiders and web-building, the ecosystem of a pond, animals that use trees for shelter, and gravity, forces, and motion. Sample photographs feature a beehive inside a tree, a turtle laying its eggs, and various types of spider webs. The discussion cards include photographs from each book on one side with extra information printed on the backs, along with questions for class discussion. The teaching guides supplied for each book present page-by-page suggestions related to each topic, as well as numerous activities keyed to different subject areas, such as science, art, and critical thinking. Sample activities include listening to heartbeats with paper cup stethoscopes, creating a mural portraying seasonal changes in a pond, and examining growth scars on tree branches. The guides also include worksheets and ideas for stimulating critical and creative thinking, as well as a list of additional resources. (SSD) [ENC-009528]

Section III: Children's Literature Books for Math and Science

The trade books on the following pages are just a sample of the many available for use in your classroom. They are grouped into math and science categories and further classified by subject. The description of each book includes the abbreviated name of the book's last known distributor; this company is not always the book's original publisher. Full contact information for these distributors can be found at the end of this section. For any out-of-print titles, you should check at libraries. To find more information about these books and others that we have in our collection, visit ENC Online (http://www.enc.org/) and search our database, Resource Finder. You can search using specific Words, Resource Type (Children's Literature or Literature), Subject (see our list of controlled vocabulary), and Grade Level; you can also search using ENC number. See page 8 for more details on searching ENC's collection.

Number Sense

Fraction Action (1994)
Loreen Leedy

Animal characters, colorful illustrations, and story formats teach students in grades 3–6 about the fractions 1/2 through 1/6. At the end of each chapter is a question for the reader to answer; answers are included. [ENC-009782] Holiday House

How Much Is a Million? (1985)
David M. Schwartz; illustrated by Steven Kellogg

Students in grades 1–6 can use this picture book to conceptualize large numbers such as a million, a billion, and a trillion. Large numbers are introduced through examples in topics ranging from whales to interstellar travel. [ENC-001299] Creative Publications

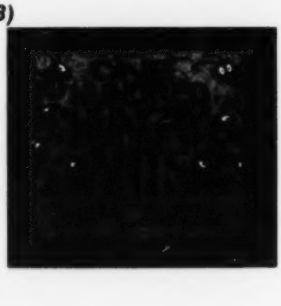
The King's Commissioners (1994)
Aileen Friedman; illustrated by Susan Guevara

One of the *Marilyn Burns Brainy Day Book* series, this story involves K–5 children in counting the king's many commissioners. One adviser counts by twos, another by fives, and the princess by tens, each arriving at the same total. The book suggests ways to engage children in talking about the story's mathematics. [ENC-009718] Scholastic

Numbers (1996)
David Kirkby

Part of the *Math Live* series for grades 3 and 4, this book presents the concept of numbers from several angles. Each two-page section describes a mathematical concept, such as the history of numbers or square numbers, followed by hands-on activities related to writing, computing, ordering, rounding, and simplifying numbers. [ENC-008400] Rigby

One Hundred Hungry Ants (1993)
Elinor J. Pinczes; illustrated by Bonnie MacKain

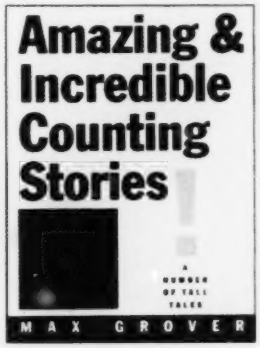


Marching verses and whimsical art illustrate for grades K–4 the factors of 100 and the principles of division. The story describes how a colony of 100 marching ants divided into rows of two, four, five, and ten to arrive at the picnic more quickly than by marching single file. [ENC-009847] Houghton Mifflin

Two of Everything (1993)
Retold and illustrated by Lily Toy Hong

Students in grades K–3 can explore the concept of doubling through this comic but wise Chinese folk tale. Illustrations clearly show the results of doubling and the concept of the number two. [ENC-009838] Albert Whitman

Counting Books



Amazing and Incredible Counting Stories! A Number of Tall Tales (1995)
Max Grover

Younger readers can learn about counting through this picture book full of colorful illustrations and sensational, unlikely news events. [ENC-006261] Harcourt Brace

Big Fat Hen (1994)
Illustrated by Keith Baker

Different numerical quantities are demonstrated for preK and K students through the childhood rhyme that starts out One, Two, Buckle My Shoe, as well as through colorful, full-page illustrations. Winner of The Golden Kite Award, Society of Children's Book Writers and Illustrators. [ENC-006336] Harcourt Brace

Dinner at the Panda Palace (1991)
Stephanie Calmenson; illustrated by Nadine Bernard Westcott

This book, written for children in grades preK–4, features entertaining illustrations and describes in rhyme how the proprietor of the Panda Palace must find seats for all the animal customers who come to dine. [ENC-006829] HarperCollins

Fish Eyes: A Book You Can Count On (1990)
Lois Ehlert

The result of adding one to a number is emphasized throughout this preK–K picture book as the narrator, a small black fish with a blue eye, counts brightly colored fish as they swim. Winner of Parents' Choice, Honors, 1990. [ENC-006293] Harcourt Brace

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I Spy Two Eyes: Numbers in Art (1993)
Lucy Micklethwait

For each number up to 20, this book for grades K–3 contains works of art that communicate the concept. It includes a Japanese woodblock print and 19 paintings dating from the 15th century to the present. [ENC-001125] Greenwillow

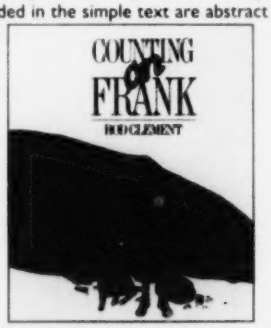
A Number of Animals (1993)
Christopher Wormell and Kate Green

This story focuses on the adventures of one lost baby chick while helping young students learn to count and recognize animals, using the numbers 1 through 10. [ENC-006289] Harcourt Brace

Measurement

Counting on Frank (1991)
Written and illustrated by Rod Clement

As Henry and his dog, Frank, explore the world from their unique mathematical perspective, students in grade 4 and up learn counting and size comparison facts. Embedded in the simple text are abstract mathematical concepts such as volume, proportion, and estimation. [ENC-009006] Gareth Stevens



Counting on Frank: A Math Adventure Game (1994)
Electronic Games for Education in Math and Science

Based on Rod Clement's book *Counting on Frank*, this CD-ROM for grades 3–8 provides practice in real-world problem solving while applying mathematical concepts from computation, estimation, and percentage. Also covered are fractions, decimals, and measurements. [ENC-008723] Creative Wonders

How Big Is a Foot? (1991)
Written and illustrated by Rolf Myller

This fictitious book for children in grades K–2 tells how and why the exact length of a foot was established. Filled with simple illustrations, the book serves to introduce young children to the concept of standard measurement. [ENC-009855] Demco

Somewhere in the World Right Now (1995)
Stacey Schuett

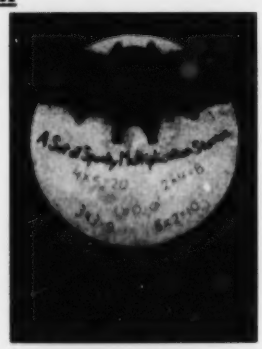
Illustrations and a simple story explain the different time zones on Earth and help readers learn about geography. The preface gives the history of the international time agreement and the reasons for its implementation. [ENC-007789] Random House

Time (1996)
Sally Hewitt

The activities in this book for grades 1–4 deal with time concepts, such as daytime and nighttime, measuring time using different units, and telling time. Several activities include suggestions for extension activities. [ENC-009033] Raintree Steck-Vaughn

Multiplication / Division

2 x 2 = Boo! A Set of Spooky Multiplication Stories (1995)
Written and illustrated by Loreen Leedy



Children in grades 2–5 meet Halloween characters who colorfully illustrate multiplication facts for numbers 0 to 5. The last chapter summarizes the basic facts through words, illustrations, and number sentences. [ENC-009474] Holiday House

Anno's Mysterious Multiplying Jar (1983)
Masaichiro and Mitsumasa Anno; illustrated by Mitsumasa Anno

Children in grades preK–3 are introduced to factorials through colorful pictures, such as rolling landscapes, castles, and a mysterious jar with some water that becomes a sea. The book moves logically from the concrete to the abstract, telling the story and then illustrating how to get the answer. [ENC-007472] Putnam

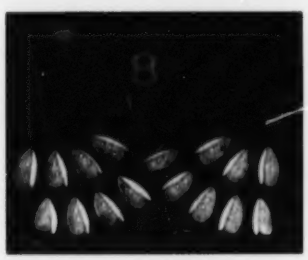
The Doorbell Rang (1986)
Pat Hutchins

This illustrated book can be used to introduce children in grades K–4 to the concept of fair division: a dozen cookies must get divided up between an ever-growing group of friends. [ENC-009850] Greenwillow

Counting by Kangaroos: A Multiplication Concept Book (1995)
Joy N. Hulme; illustrated by Betsy Scheld

For students in grades K–4, rhyme schemes and Australian animals demonstrate multiplication of the integers 1 to 10 by 1, 2, and 3. The book also includes Aboriginal style art and descriptions of each animal mentioned in the story. [ENC-003811] W.H. Freeman

Each Orange Had 8 Slices: A Counting Book (1992)
Paul Giganti, Jr.; illustrated by Donald Crews



This colorful book, written for grades 1–4, reinforces beginning multiplication concepts and visual literacy. It also provides the opportunity to practice counting or to introduce fractions. [ENC-009849] Greenwillow

Geometry

Arithmetic (1993)
Carl Sandburg; illustrated by Ted Rand
Carl Sandburg's poem "Arithmetic" is illustrated for grades 1–3 with Ted Rand's anamorphic drawings, which are distortions of the optical image. The book includes an explanation of these drawings and directions for viewing and creating them. [ENC-006154] Harcourt Brace

Circles and Spheres (1994)
Sally Morgan
This book, written for students in grades 1–3, defines terms associated with circles and examines their relationship to spheres. Applications of circles and spheres are described and illustrated with items found in the home, such as food and bubbles. [ENC-003941] Raintree Steck-Vaughn

Geometry in Architecture (1984)
William Blackwell
Architecture and design provide the context in which grade 7–12 students can review geometric concepts. The book illustrates the relationships between symmetry, harmony, order, and architecture. [ENC-007847] Key Curriculum

The Greedy Triangle (1994)
Marilyn Burns; illustrated by Gordon Silveria
Part of the *Marilyn Burns Brainy Day Book* series, this book invites children in grades K–5 to wonder about what happens to shapes as they get more sides and more angles. [ENC-009717] Cuisenaire

The Hands-on Marvelous Ball Book (1995)
Bradford Hansen-Smith
Written in rhymed verse, this picture book for grades 4–8 describes unexpected events and uses illustrations to discuss how two- and three-dimensional shapes may be formed using a circle or a sphere. [ENC-003812] W.H. Freeman

Patterns (1996)
David Kirkby
This book, part of the *Math Live* series for grades 3 and 4, helps intermediate readers develop reasoning and mathematics skills. Each two-page section describes a mathematical concept and/or presents hands-on activities related to patterns in numbers. [ENC-008401] Rigby

Sir Cumference and the First Round Table: A Math Adventure (1997)
Cindy Neuschwander; illustrated by Wayne Geehan
The familiar myth of King Arthur's Round Table is the context for children in grades 1–5 to explore shapes and measurement. Part of the *Math Adventure* series, this book emphasizes problem solving, shape, and mathematical vocabulary. [ENC-009844] Charlesbridge

Round Table Geometry (1996)
Charlesbridge Publishing
This teacher's guide for *Sir Cumference and the First Round Table* [see above] includes ideas for promoting connections between literature and mathematics, activities for manipulating and measuring shapes, and problem-solving investigations. [ENC-009781] Charlesbridge

Shapes, Shapes, Shapes (1986)
Tana Hoban
This book can serve as an imaginative and entertaining first lesson in basic geometry for young children. It describes shapes such as circles, triangles, stars, and ovals, and features full-page color photographs of these shapes in the world around us. [ENC-009848] Greenwillow

Spirals (1995)
Sally Morgan
Written for grades 1–4, this book features colorful photographs that depict spirals as they appear in architecture, nature, and other real-world settings. Some examples include phone cords, staircases, spiderwebs, and amusement park rides. [ENC-008747] Raintree Steck-Vaughn

Symmetry: A Unifying Concept (1994)
Istvan Hargittai, Magdolna Hargittai
Young readers can explore symmetry through this book's use of visuals, including photographs, drawings, and paintings. By avoiding technical terms, the authors make the concepts accessible to a broad audience. [ENC-008076] Key Curriculum

Visions of Symmetry: Notebooks, Periodic Drawings, and Related Work of M. C. Escher (1990)
Doris Schattschneider
This biographical account of M. C. Escher, targeted at students in grades 7–12, includes a study of his work as a graphic artist and layman mathematician. It combines two of the artist's notebooks with the complete body of his symmetrical drawings. [ENC-007848] Key Curriculum

Applied Math

Alice in Pastaland: A Math Adventure (1997)
Alexandra Wright; illustrated by Reagan Word
Lewis Carroll's *The Adventures of Alice in Wonderland* is retold in this book for students in grades K–3. The emphasis is on number concepts, basic operations, measurement, and problem solving. [ENC-009845] Charlesbridge

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Pasta Math (1997)
Mary Chandler

This teacher's guide for *Alice in Pastaland* [see above] provides blackline masters, activities, and ideas for manipulatives that can reinforce and extend the mathematical concepts explored in the book. It is designed to engage multiple intelligences, including verbal/linguistic, logical/mathematical, and visual/spatial. [ENC-009704] Charlesbridge

How the Second Grade Got $8,205.50 to Visit the Statue of Liberty (1992)
Nathan Zimelman; illustrated by Bill Slavin

Students in grades K–3 can share the trials and triumphs of a group of second graders attempting to raise money for a trip to the Statue of Liberty. Written in the style of a treasurer's report, this book addresses basic money concepts such as profit and expenses. [ENC-009702] Albert Whitman

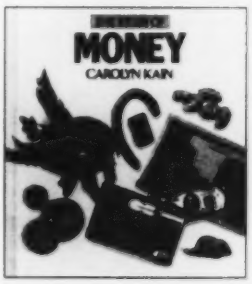
If You Made a Million (1989)
David M. Schwartz; illustrated by Steven Kellogg

Using a story context, this picture book for grades 1–4 introduces the concept of a million, develops money concepts, and discusses bank accounts and interest. [ENC-001654] Dale Seymour

Math Curse (1995)
Jon Scieszka and Lane Smith

Haunted by a math curse, a student sees every life activity framed as a mathematical problem, such as determining the number of flakes in a bowl of cereal. This book is written for students in grades 4–8. [ENC-009867] Viking, Penguin

The Story of Money (1994)
Carolyn Kain; illustrated by Gerry Wood



Students in grades 1–4 can trace the historical evolution of money. Topics include bartering, the first coins, and the evolution of paper money, as well as modern banks, taxes, and future uses of money. [ENC-001294] Troll

Puzzles / Game Books

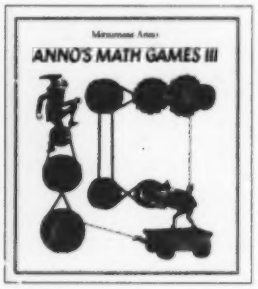
Aha! Insight (1978)
Martin Gardner

Developed for grades 7–12, this collection of puzzles and brain teasers is designed to lead to the sudden hunches or short solutions of problems that are called "Aha!" reactions. [ENC-006742] W.H. Freeman

Anno's Math Games II (1989)
Mitsumasa Anno

Through its graphical drawings, this book introduces young children to elementary numerical and spatial concepts. From comparing similarities between two pictures to exploring how dots make pictures, the questions encourage development of comparison, counting, and measurement skills. [ENC-009868] Putnam

Anno's Math Games III (1991)
Mitsumasa Anno



Drawings introduce young children to mathematical concepts of topology, triangles, and transformations. For example, Kriss and Kross develop a magic liquid that stretches or shrinks whatever it touches, and they watch as shapes are transformed. [ENC-009869] Putnam

Creative Puzzles of the World (1995)
Pieter van Delft and Jack Botermans

This book is an introduction to the history, theory, and craftsmanship behind all types of puzzles. It contains more than 1 000 puzzles that range in complexity from those that require only pencil and paper or a box of matches, to intricate constructions that require a few hours' work by a fairly skilled carpenter. [ENC-006475] Key Curriculum

More Sideways Arithmetic from Wayside School (1994)
Louis Sachar

Occurrences in a fictional classroom are the context for this book's more than 50 brain teasers, which students in grades 3–6 can solve by using arithmetic operations and logic. Clues, hints, and solutions are included at the back of the book. [ENC-009856] Scholastic

Operation Magic Tricks (1995)
Ronald Edwards

This collection of magic number tricks is designed for elementary and middle school students. As students encounter the magic tricks, they are led through various mathematical computations and discoveries. [ENC-007249] Critical Thinking

Take off with Puzzles (1996)
Sally Hewitt

This book, one in a series of six for grades 1–4, contains activities, puzzles, and games for an adult and a child to enjoy together. Activities develop skills such as counting and sorting objects, sequencing, and recognizing shapes. [ENC-008925] Raintree Steck-Vaughn

Section III: Children's Literature Books for Math and Science

Picture Books:

Multicultural

African Animals ABC (1995)
Philippa-Alys Browne

Full of rhymes and illustrations for students in grades preK–2, this book uses 26 African animals from A to Z to teach the alphabet. Some of the animals are endangered, and notes are provided to enable readers to learn more about them. [ENC-007534] Little, Brown

The Boy Who Dreamed of an Acorn (1994)
Leigh Casler; illustrated by Shonto Begay

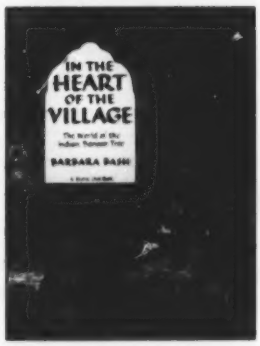
This story, written for grades preK–3, is based upon a Native American rite known as the spirit quest. A young Chinook boy climbs a mountain and has a dream of an acorn, a dream that a wise man helps him interpret. In addition to the narrative, the text provides a glossary of Chinook language terms. [ENC-007525] Putnam

Desert Giant: The World of the Saguaro Cactus (1989)
Barbara Bash

Written for grades K–5 as an introduction to the desert ecosystem, this book is designed to capture the majesty of the desert environment and illuminate the ecological importance of the desert cactus. [ENC-007700] Little, Brown

In the Heart of the Village: The World of the Indian Banyan Tree (1996)
Barbara Bash

Set in a village in India, this story tells students in grades 1–5 about the significance of the banyan tree to the villagers, who believe this tropical species of tree is sacred. Illustrated in watercolors, the story highlights the interconnectedness of life in this rural culture. [ENC-008505] Little, Brown



Tree of Life: The World of the African Baobob (1989)
Barbara Bash

Students in grades K–5 can read about the African baobob tree and the interconnection of life on the African savannah. Leafless and bare for much of the year, the baobob helps support a rich variety of life and is called "mother" by the African people. [ENC-007491] Little, Brown

Why the Sky Is Far Away: A Nigerian Folktale (1974)
Retold by Mary-Joan Gerson; illustrated by Carla Golembe

This traditional Nigerian folk tale, retold for K–6 students, is illustrated with brilliantly colored monotypes that depict the African landscape, as well as the traditional dress and the daily activities of the people. Winner of Best Illustrated Children's Book, from *The New York Times Book Review*. [ENC-009699] Little, Brown

Picture Books:

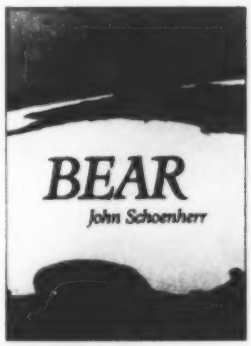
Literature

All Night Near the Water (1994)
Jim Arnosky

The night and all its creatures are explored by 12 newly hatched ducklings. Students in grades preK–1 will learn about frogs croaking, fireflies flashing, and predatory pikes cruising through the water. [ENC-007651] Putnam

Bear (1991)
John Schoenherr

A young bear learns to survive alone in the wilderness, and his adventures are illustrated for grades preK–3 with large-scale watercolors that depict the Alaskan landscape, the change of seasons, and the movement of the animals. Winner, Best Books from *School Library Journal*. [ENC-007275] Putnam



A Brighter Garden (1990)
Compiled by Karen Ackerman; paintings by Tasha Tudor

This book, published for students of all ages, combines the poetry of Emily Dickinson and the art of Tasha Tudor to portray the characteristics of the four seasons. Watercolor paintings depict New England landscapes and people in nineteenth-century dress engaged in outdoor activities. [ENC-007526] Putnam

Catskill Eagle (1991)
Herman Melville; paintings by Thomas Locker

Herman Melville's classic story tells of an eagle who dwells in the Catskill mountains. This illustrated version, written for grades preK–3, relates the activities of the eagle and its various habitats. [ENC-007273] Putnam

Every Autumn Comes the Bear (1993)
Jim Arnosky

This book uses large-scale pictures and simple language to tell young children about how a bear prepares for hibernation. It features full-color illustrations of animals. [ENC-007652] Putnam

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Letting Swift River Go (1992)

Jane Yolen; illustrated by Barbara Cooney

Sally Jane experiences changing times in rural America, as the Swift River towns in western Massachusetts are drowned in order to form the Quabbin Reservoir. The text and illustrations, aimed at grades K–6, depict preparations for drowning a town, such as moving graves, clearing the trees, and tearing down buildings. [ENC-009700] Little, Brown

Otters Under Water (1992)

Jim Arnosky

Large-scale watercolors and simple words, written for grades preK–1, describe the underwater antics of of two otter pups. Arnosky's illustrations include such details as the otters' webbed feet, thick tails, and flexible spines, as well as other animals and freshwater plant life. [ENC-007653] Putnam

Owl Moon (1987)

Jane Yolen; illustrated by John Schoenherr

A father and daughter trek into the woods to see the Great Horned Owl. Written for grades preK–3, the poetic text and soft watercolor paintings describe their journey late one winter night into the silent, dark forest. Winner of 1988 Caldecott Medal from the American Library Association. [ENC-007259] Putnam

To Climb a Waterfall (1995)

Jean Craighead George; illustrated by Thomas Locker

Intended for students in preK and beyond, this book encourages discovery and appreciation of the outdoors. It gives children directions for climbing a waterfall, including where to rest and what to look for as they climb. [ENC-007535] Putnam

Welcome to the Green House (1993)

Jane Yolen; illustrated by Laura Regan

Lyrical text describes for grades K–6 the tropical rain forest and the life found there. Colorful gouache paintings show the details of such rain forest animals as the green-coated sloth, the keel-billed toucan, and the golden lion tamarind against a background of lush vegetation. [ENC-009864] Putnam

Welcome to the Sea of Sand (1996)

Jane Yolen; illustrated by Laura Regan

This picture book for grades K–6 introduces the sights and sounds of the Sonora Desert as it bursts into life and color after the rains. The book is illustrated with colorful, full-spread paintings that depict the details of the wildlife and the vivid colors of the desert landscape. [ENC-009865] Putnam

Picture Books:
Something Different

Breaking into Print: Before and After the Invention of the Printing Press (1996)

Stephen Krensky; illustrated by Bonnie Christensen

Students in grades 2–5 get a glimpse into a time when books were hand-lettered by monks and took months to create. The simple narrative, wood engravings, and illuminated borders show how Gutenberg's invention of the printing press transformed society and shaped the world in which we live today. [ENC-008506] Little, Brown

Cloudy with a Chance of Meatballs (1978)

Judi Barrett; illustrated by Ron Barrett

This picture book for grades 4–6 tells the story of Chewandswallow, a town where it rains soup and juice, snows mashed potatoes, and blows storms of hamburgers. Everything is delicious until the weather takes a turn for the worse. Violent storms blow in giant pancakes that cover the school and a tomato tornado that turns the town into a mess of pulp and seeds. [ENC-010353] Simon & Schuster

Earth: The Incredible Recycling Machine (1993)

Paul Bennett

Designed for grades 3–5, this book explores how Earth's vital resources—water, carbon, nitrogen, sulfur, and phosphorous—are carefully recycled through the natural process of life, growth, and decay. [ENC-003820] Raintree Steck-Vaughn

Eric Carle's Animals Animals (1989)

Poems collected by Laura Whipple; illustrated by Eric Carle

This illustrated anthology of poetry, designed for preK–6, celebrates more than 60 of the world's animals. Eric Carle's colorful collages illustrate poetry and lyrical pieces from sources as diverse as the Bible, Japanese haiku, African Pygmies, Pawnee Indians, D.H. Lawrence, and Rudyard Kipling, to name a few. [ENC-007655] Putnam

The Great Trash Bash (1991)

Written and illustrated by Loreen Leedy

A hippopotamus, Mayor Hippo, slips on a banana peel and realizes his town has too much trash. Students in grades preK–3 can read how the town goes on a trash bash, becoming involved with reducing, reusing, recycling, and composting. [ENC-009180] Holiday House

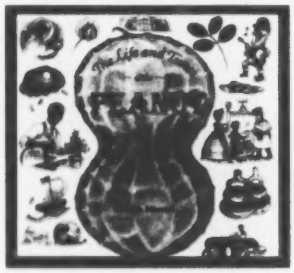
How to Hide a Butterfly and Other Insects (1985)

Ruth Heller

Part of Ruth Heller's *How to Hide* series for preK–3, this book introduces the concept of camouflage through colorful, true-to life-illustrations. In addition to the butterfly, the book shows how a moth, a praying mantis, and a grasshopper can be difficult to see in their natural habitats. [ENC-007488] Putnam

The Life and Times of the Peanut (1997)

Charles Micucci



The long history of the peanut is examined in this illustrated trade book for grades 3–5. Lively text and detailed, colorful illustrations show how this legume differs from nuts, beans, and root vegetables. Children learn the parts of the peanut plant and follow its growth from a single peanut to a mature plant that can bear over 100 peanuts. [ENC-009852] Houghton Mifflin

Lifetimes (1997)

David L. Rice; illustrated by Michael S. Maydak

This book, developed for grades K–6, uses colorful illustrations and simple text to introduce some of the longest, shortest, and most unusual lifetimes of a variety of plants and animals. A teacher's guide is also available. [ENC-009530] Dawn Publications

The Lorax (1971)

Dr. Seuss

The Lorax, keeper of the trees, warns the greedy Once-ler to stop chopping down the Truffula trees, upon which the Bar-ba-loots depend for survival. When all the natural resources are depleted, the Lorax leaves a cryptic message: "unless someone like you cares an awful lot, nothing is going to get better." This book is written for grades K–6. [ENC-009863] Random House

The Reason for a Flower (1983)

Written and illustrated by Ruth Heller

Colorful artwork and repeatable rhymes teach readers in grades preK–3 about the interdependence between plants and animals. Other topics include pollination, angiosperms, parasitism, herbivorous animals, and carnivorous plants. [ENC-007477] Putnam

Urban Roosts: Where Birds Nest in the City (1990)

Barbara Bash

How do birds survive in urban environments? This grade K–6 book features watercolor illustrations and simple text depicting pigeons, falcons, finches, owls, sparrows, and starlings in a variety of urban settings, such as underneath bridges, on statues, and inside street lights. [ENC-009701] Little, Brown

The Very Quiet Cricket (1990)

Eric Carle

A young cricket tries to rub his wings together to make a sound so that he can speak to the cicada, dragonfly, mosquitoes, bees, and other insects who greet him. Carle's colorful collages, designed for grades preK–6, include the details of the insects' body structures. [ENC-007659] Putnam

What's Smaller Than a Pygmy Shrew? (1995)

Robert E. Wells

Written for grades 1–6, this picture book introduces the microscopic world. It begins with a tiny mammal, the 3-inch pygmy shrew, which would look like a mammoth next to a lady bug. The book introduces sequentially smaller things, such as bacteria and water molecules, until it reaches the tiniest subatomic particles, the quarks. Winner of the Outstanding Science Tradebook for Children for 1996 from NSTA and CBC. [ENC-009885] Albert Whitman

Who Lives Here? (1995)

Maggie Silver

Young readers interested in the Earth's environment, its creatures, and humankind's role among them will find this book helpful. It introduces a variety of animal habitats through full-color illustrations and a lift-the-flap format. [ENC-007531] Little, Brown

Picture Books:

Photography

Carnivorous Plants (1992)

Nancy J. Nielsen

Students in grades 4–8 are introduced to carnivorous plants such as Venus flytraps, bladderworts, sundews, butterworts, and pitcher plants. The book includes full-color photographs, information about places to see carnivorous plants, and a list of additional resources. [ENC-005935] Grolier

Come Back, Salmon: How a Group of Dedicated Kids Adopted Pigeon Creek and Brought It Back to Life (1992)

Molly Cone; photographs by Sidnee Wheelwright

A group of elementary students sets out to reclaim a nearby stream that had once been a salmon spawning ground. The book describes why salmon disappeared from the stream, how the children cleaned the stream and cared for salmon eggs in a fish tank, and how they returned the young salmon to the stream. [ENC-007495] Little, Brown

Kotik: The Baby Seal (1995)

Angele Delaunois; photography by Fred Bruemmer

On an ice pack in the Gulf of Saint Lawrence, a baby harp seal is born. Color photographs and a simple text tell students in grades 4–8 the true story of the first weeks of a whitecoat's life. [ENC-006932] Orca Book

Nanook and Naoya: The Polar Bear Cubs (1995)

Angele Delaunois; photography by Fred Bruemmer

Based on field observations of the polar bears at Cape Churchill in northern Manitoba, this grade 2–8 book is the true story of two cubs' first years of life. [ENC-007769] Orca Book

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Nights of the Pufflings (1995)
Written and photo-illustrated by Bruce McMillan

Award-winning author and photographer McMillan documents the annual tradition of Icelandic children rescuing thousands of stranded young pufflings. The book, written for grades 1–5, features full-color photographs, facts about the young and adult birds, and photography tips. [ENC-009851] Houghton Mifflin

Water, Water Everywhere (1994)
Mary J. Rauzon and Cynthia Overbeck Bix

Designed for grades 1–4, this book provides information and color illustrations about water. Children explore the water cycle, examine the way water and its many forms change the face of the Earth, and learn the importance of water conservation. [ENC-007497] Little, Brown

Picture Books:
Sierra Club

Dancers in the Garden (1992)
JoAnne Ryder; illustrated by Judith Lopez

Students in grades K–4 can follow the activities of a male hummingbird and his mate as they steal insects from a spider's web, gather nectar, and defend their territory against invading birds. In addition to the poetic text, the author provides an informative essay about hummingbirds and bibliographic references. [ENC-007533] Little, Brown

Danger on the African Grassland (1991)
Elisabeth Sackett; illustrated by Martin Camm

A mother rhinoceros and her calf are pursued by hunters throughout the African grassland. The book, written for grades K–3, includes color illustrations of the savannah and its other endangered species. [ENC-007496] Little, Brown

Do Not Disturb: The Mysteries of Animal Hibernation and Sleep (1989)
Margery Facklam; illustrated by Pamela Johnson

Students in grades 4–6 can track the movements of a wide variety of animals, from the grizzly bear to the red-sided garter snake to the hummingbird, as they prepare for dormant periods that may last an entire season or just a few hours. [ENC-007649] Little, Brown

My First Nature Treasury (1994)
Written by Lizann Flatt; illustrated by Allan Cormack and Deborah Drew-Brook

This book, designed for grades preK–3, provides color pictures and information about how living things grow and what animals eat, the major families of animals and plants, and different habitats such as forests, rain forests, grasslands, desert, and oceans. [ENC-007498] Little, Brown

What About Ladybugs? (1995)
Celia Godkin

This story, for grade preK–3 students, describes how a gardener attempts to rid his garden of pests and ends up realizing the importance of insects like the ladybug, which plays an important part in maintaining the balance of the garden. [ENC-007494] Little, Brown

Who Comes? (1995)
Deborah Chandra; illustrated by Katie Lee

Poetic text describes for students in grades preK–3 what a lion sees while waiting for his prey at a waterhole. The book also features animals such as the waterbuck, zebra, wildebeest, and giraffe. [ENC-007493] Little, Brown

Safari Beneath the Sea: The Wonder World of the North Pacific Coast (1994)
Diane Swanson; photographs by the Royal British Columbia Museum

In this book, readers in grades 5–7 embark on an exciting safari into the rich coastal waters of the North Pacific, from Oregon to Alaska. The book tells of how a unique combination of winds, currents, and geography makes the sea a perfect home for a variety of marine plants and animals. National Council of Teachers of English, Orbis Pictus Award for Outstanding Nonfiction for Children (see page 44 of this issue). [ENC-007483] Little, Brown

Picture Books:
DK Publishing

Big Bang: The Story of the Universe (1997)
Heather Couper and Nigel Henbest; illustrated by Luciano Corbella

Through color pictures and illustrations, this book takes students in grades 6–12 on a journey of discovery through the mystery of the creation of the universe. Along the way, they investigate the origin of matter, the echoes of the Big Bang, creation myths, and the birth of space and galaxies. [ENC-009697] DK Publishing

Egg (1994)
Robert Burton; photographed by Jane Burton and Kim Taylor

In this book for grades 6–12, a series of full-color photographs illustrates the very moment an egg hatches. For each animal, the book provides pictures of the actual size of the egg, a chronological sequence of the animal breaking through its shell, and the newly emerging animal. [ENC-001652] DK Publishing

Incredible Comparisons (1996)
Russel Ash; illustrated by Russel Barnett and Richard Bonson

Visual comparisons of hundreds of objects are provided to help children in grade 3 and up understand sizes, height, speeds, and numbers. Ash uses commonplace objects such as the weight of a human, the speed of a car, or the height of a house to answer such questions as How big is it? or How fast is it? [ENC-007564] DK Publishing

Inside the Body: A Lift-the-Flap Book (1996)
Anita Ganeri; illustrated by Giuliano Fornari

Designed for children age 10 and up, this anatomy book features full-color and detailed photos that show how muscles, bones, and organs fit together. The text explains how each part and body system works. [ENC-007503] DK Publishing

Natural World (1994)
Steve Parker

This colorful guide for grades 5–12 provides photographs of wildlife and explores several aspects of animal life. Also included is a reference section containing an overview of animal classification, a prehistoric time scale, and a glossary. [ENC-001838] DK Publishing

The Snake Book (1997)
Mary Ling and Mary Atkinson; photography by Frank Greenaway and Dave King

Close-up, full-page photographs are provided for all grade levels of twelve species of snakes, including the green cat snake, the amethystine python, and the boa constrictor. The book also presents a table of snake statistics that summarizes the range, diet, predation methods, and lengths of the snakes. [ENC-009837] DK Publishing

Biography / Historical

The Day the Sun Rose Twice (1984)
Ferenc Morton Szasz

Students in grade 10 and up can read about the events, personalities, and scientific processes that led to the detonation of the first atomic bomb in New Mexico. The author reconstructs the story: the industrious atmosphere of the scientists and technicians; the grave considerations of those making key decisions; the sense of wonder and twinges of conscience at what had been achieved. Winner of the 1986 Robert G. Athearn Award for outstanding book on the twentieth-century American West, Western History Association. [ENC-009886] University of New Mexico

Dian Fossey (1995)
Jack Roberts

Part of a series of biographies for grades 7–12, this book details the life of zoologist and conservationist Dian Fossey, who studied the mountain gorilla in Central Africa. The text is enhanced with primary and secondary source quotations, photographs, a chronology of important dates in Fossey's life, and an annotated bibliography. [ENC-009862] Greenhaven

Jane Goodall (1997)
Paula Bryant Fratt

This book, part of the same biography series described above, presents the life of primatologist Jane Goodall. It includes primary and secondary source quotations, photographs, a chronology of important dates in Goodall's life, and an annotated bibliography. [ENC-009861] Greenhaven

Marie Curie's Search for Radium (1996)
Beverley Birch; illustrated by Christian Birmingham

Young readers learn about Marie Curie's discovery of radium and polonium, as well as about current understandings of radioactivity and atomic theory. [ENC-004596] Barron's

Muir of the Mountains (1994)
William O. Douglas; illustrated by Daniel San Souci

This abridged edition of the famous biography by Supreme Court Justice William O. Douglas, modified for grades 4–7, describes the events and ideas that influenced John Muir, conservationist and founder of the Sierra Club. [ENC-007532] Little, Brown

Pasteur's Fight Against Microbes (1996)
Beverley Birch; illustrated by Christian Birmingham

This is the dramatic true story of Louis Pasteur and his discovery of microbial contamination, bacterial culture medium, and heat sterilization. It is illustrated for grades 2–4 with full-color oil pastels that depict Pasteur at work, the yeasts and bacteria that he saw under his microscope, and the factories, laboratories, glassware, and other equipment of the mid-19th century. [ENC-004603] Barron's

Grades 7–12: Fiction

The Ancient One (1992)
T.A. Barron

Kate and her friends work hard to save a grove of ancient redwood trees. This fantasy adventure novel is designed to increase awareness of environmental issues and to illustrate the conflict between the need for wood, the commerce it engenders, and the importance of fighting for what is right. [ENC-007485] Putnam

A Gebra Named Al: A Novel (1993)
Wendy Isdell

This novel with accompanying teacher's guide describes how Julie goes on a fanciful but educational journey through the Land of Mathematics, where characters help her acquire the skills she needs to solve algebra problems. The teacher's guide provides questions, problems, and activities for use with the student book. First Place winner in 1989 Virginia Young Authors' Contest. [ENC-004432] Free Spirit

The Chemy Called Al: A Novel (1996)
Wendy Isdell

This sequel to *A Gebra Named Al* (see above) follows Julie to the Land of Science to solve a science mystery. Along the way, she discovers the relationship between alchemy and science, learns more about the Periodic Table, and explores the States of Matter. The accompanying teacher's guide provides questions, problems, and activities for use with the student book. [ENC-007661] Free Spirit

The Merlin Effect (1994)
T.A. Barron

This adventure novel focuses on Kate Gordon, who travels to a remote California lagoon in search of a sunken Spanish galleon that disappeared centuries ago. The story weaves together mystery, fact, history, myth, science, and faith, in the course of a compelling adventure. [ENC-007486] Putnam

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Grades 7–12: Nonfiction

The Human Genome Project: Cracking the Code Within Us (1996)
Elizabeth L. Marshall
The Human Genome Project is a fifteen-year gene mapping project. This book discusses the process of gene mapping and concerns voiced by the Project's critics. The text follows four researchers as they sequence the human genome. [ENC-008989] Grolier

Medical Dilemmas (1990)
Margaret O. Hyde and Elizabeth H. Forsyth
Advances in medical technology often raise controversies and ethical dilemmas. This book examines such questions as who should receive organ transplants, how long should expensive and painful treatment for brain-damaged babies continue, and who has the right to discontinue life support systems. [ENC-007529] Putnam

The Secret of Life: Redesigning the Living World (1993)
Joseph Levine and David Suzuki
Students are introduced to the discovery of DNA, the development of genetically engineered organisms, and the impact of this biotechnology on our daily life. Notes and references are provided. [ENC-006199] WGBH Educational Foundation

Books by Series:

How Things Work (Grades 3–6)

Heat (1993)
Andrew Dunn; illustrated by Ed Carr
Full-color photographs and simple text are used to discuss heat, explaining how everyday devices function. The book describes the use of heat in daily life, as well as how people create and counter heat. [ENC-008921] Raintree Steck-Vaughn

Lifting by Levers (1993)
Andrew Dunn; illustrated by Ed Carr
To illustrate where levers are hidden and how they make things work, this book examines everyday objects such as scissors, the keys of a grand piano, and tweezers. [ENC-004960] Raintree Steck-Vaughn

Books by Series:

The Really Horrible Guides (Grades K–6)

The Really Fearsome Blood-Loving Vampire Bats and Other Creatures with Strange Eating Habits (1996)
Theresa Greenaway; photography by Frank Greenaway and Kim Taylor
This book describes the eating habits of multiple species of bat, cockroach, fly, and mosquito. Additional topics include reproduction, metamorphosis, and the role of insects in spreading disease. [ENC-007741] DK Publishing

The Really Hairy Scary Spider and Other Creatures with Lots of Legs (1996)
Theresa Greenaway; photography by Frank Greenaway and Kim Taylor
Children are introduced to different species of spider, tarantula, centipede, millipede, stick and leaf insects, ants, and beetles. The large-type text points out the distinguishing characteristics of each species and explains how biological adaptations such as hairy legs, venom, a foul smell, or a bad taste are advantageous in defense and in finding food. [ENC-007740] DK Publishing

Books by Series:

Down in the Sea (Grades PreK–3)

Down in the Sea: The Crab (1994)
Patricia Kite
Colorful illustrations and simple text describe the fiddler crab's language, feeding habits of crabs, how they protect themselves, and how they care for their babies. [ENC-009703] Albert Whitman

Down in the Sea: The Sea Slug (1994)
Patricia Kite
This book begins by illustrating the various types, sizes, and colors of sea slugs. It then examines their habitats, external anatomy, and behavior. [ENC-009839] Albert Whitman

Books by Series:

Knowing Science (Grades 1–3)

Basker's in Deep Water (1997)
Susan Buckland; illustrated by Margaret Woodhouse
Bored with cruising the shallows and eating plankton, a basking shark named Basker decides to look for action by exploring the deep waters and then heading for the beach to scare the swimmers. [ENC-009693] Outside the Box

The Red Baron Bowski's Got Blue Blood (1997)
Written and illustrated by Margaret Woodhouse
The adventures of the Red Baron provide the context for children to learn about their blood and blood vessels. Some of the Baron's misadventures include cutting his chin, falling down, and shivering when he goes outside without a coat. [ENC-009688] Outside the Box

When the Toast Popped Up! (1997)
Written and illustrated by Margaret Woodhouse
The Red Baron is at it again! Children learn about their five senses as the Red Baron uses his senses of sight and smell to locate his breakfast in a dining room, his sense of hearing to tell when the toast pops up, and touch and taste to determine the correct temperature and topping for his toast. [ENC-009691] Outside the Box

Books by Series:

Save Our Species (Grades 2–6)

Project Panda (1992)
Jill Bailey; illustrated by Alan Baker

Xiao Ling is interested in pandas and asks questions such as what people in the Chinese culture have thought of pandas, and what the Chinese government has done to preserve them. Other characters explain about the lives of pandas and preservation efforts. [ENC-009779] Raintree Steck-Vaughn

Project Whale (1992)
Jill Bailey; illustrated by John Green

Walter, a whale watcher tour guide, takes a group of tourists on a whale watching tour and explains different aspects of whales, including their birthing habits, how they raise their young, and how they navigate through the ocean. This book is intended to communicate the importance of preserving whales. [ENC-009780] Raintree Steck-Vaughn

Books by Series:

Young Reader's Series (Grades 2–4)

Adios Chi Chi: The Adventures of a Tarantula (1996)
Carol A. Amato; illustrated by David Wenzel

Maria discovers a tarantula and makes it her pet. In the process of caring for Chi Chi, she learns about tarantulas' physical characteristics, habitat, and needs in captivity. She ends up returning Chi Chi to the wild. A glossary defines Spanish and scientific terms used in the story, and guidelines help parents and teachers integrate science and reading. [ENC-004597] Barron's

Captain Jim and the Killer Whales (1995)
Carol A. Amato; illustrated by Patrick O'Brien

Captain Jim, a wise old fisherman, tells Zach and Mandy about the creatures of the sea, especially about orcas, or killer whales. The kids learn that orcas are skilled predators of seals and penguins, but aren't dangerous to people. [ENC-004598] Barron's

Books by Series:

Inside Guides (Grades 3–12)

Amazing Bugs (1996)
Miranda MacQuitty

This guide features models, color photographs, and facts about insects. Detailed three-dimensional models reveal the insides of the insects' bodies, while the text and annotations explain how the various parts function. [ENC-006941] DK Publishing

Animal Homes (1996)
Barbara Taylor

Explore the architecture and construction of animal homes, including the building materials the animals use to produce them. Specific sections are devoted to animals that construct artificial habitats in human residences and to animals that live in rotting logs and underground homes. [ENC-006943] DK Publishing

Books by Series:

Our Living World (Grades 4–8)

Fungi (1994)
Jenny Tesar; illustrated by Wendy Smith-Griswold

This overview of fungi biology includes the different kinds of fungi and fungi bodies, senses, anatomy, and physiology. It provides a classification chart for each organism, a glossary of scientific terms, and a list of suggested reading. [ENC-003047] Blackbirch

Patterns in Nature: An Overview of the Living World (1994)
Jenny Tesar

Topics include the variety, characteristics, and evolution of living things, as well as how animals and plants respond to changes in the environment. Color illustrations, diagrams, and photographs supplement the text. [ENC-003043] Blackbirch

Books by Series:

Eyewitness Science (Grades 5–12)

Technology (1995)
Roger Bridgman

Explore the world of technology, from the largest structure to the smallest electronic device. Illustrations and full-color photos depict devices, machines, tools, and materials; three-dimensional models elucidate innovations and the principles involved. [ENC-001874] DK Publishing

Medicine (1995)
Steve Parker

Students can read about the history of medicine from the ancient world to the present day. Illustrations and full-color photos are provided of medical instruments, experiments, and medications. The book also illustrates the development of nursing, emergency treatment, family medicine, and diagnostic tests. [ENC-001875] DK Publishing

Books by Series:
Life Story (Grades 4–6)

Frog (1991)
Michael Chinery; photography by Barrie Watts; illustrated by Martin Camm

Topics cover the changes a tadpole undergoes as it becomes a frog and natural enemies that catch and eat frogs at all stages of their lives. Each topic is illustrated by drawings and full-page photographs. [ENC-001224] Troll

Snake (1991)
Michael Chinery; photography by Barrie Watts; illustrated by Denys Ovenden

Students can learn how snakes use their scales for moving, how they smell with their tongues, and how they open their mouths wide enough to swallow animals bigger than themselves. [ENC-001227] Troll

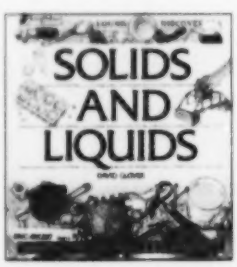
Books by Series:
Young Discoverers (Grades 3–6)

Batteries, Bulbs and Wires: Science Facts and Experiments (1993)
David Glover

Conceptual diagrams, facts, and experiments introduce students to magnets, how to join batteries and wires to light up bulbs, and how electricity and magnets are linked. Realistic illustrations accompany short explanations of objects and phenomena. [ENC-001204] Larousse Kingfisher

Solids and Liquids: Science Facts and Experiments (1993)
David Glover

Step-by-step instructions and labeled illustrations guide students in the use of household items to make rubber powered machines, bridges, and a chemical reaction that will power a rocket. [ENC-001207] Larousse Kingfisher



Sound and Light: Science Facts and Experiments (1993)
David Glover

This book introduces students to sound and light, including thunder and lightning, sound waves, and vibrations and frequency of waves. Other activities involve students in simple demonstrations of sound waves traveling through air and along a string, the reflection of sound waves, and refraction of light. [ENC-001206] Larousse Kingfisher

Books by Series:
Migration (Grades 4–8)

Insect Migration (1992)
Liz Oram and R. Robin Baker

Students are introduced to the migrations of animals such as butterflies, bees, moths, and locusts. All books in the series feature full-color photographs as well as maps and diagrams. [ENC-008797] Raintree Steck-Vaughn

Migration in the Sea (1992)
Liz Oram and R. Robin Baker

This book covers migrations of animals that live in the ocean, such as tuna, turtles, and lobsters. Also featured are the sea urchin, tide pool fish, crabs, and California sea lions. [ENC-008791] Raintree Steck-Vaughn

Books by Series:
What on Earth? (Grades 2–5)

What on Earth Is a Meerkat? (1994)
Jenny Tesar

This series explores the lifestyles and habitats of animals that few people even know exist. In this book, the subject is the meerkat, a small mammal with long soft fur. Topics covered include a description of the meerkat and its habitat, defense strategies, and growth. [ENC-003060] Blackbirch

What on Earth Is a Skink? (1994)
Edward R. Ricciuti

The skink is a reptile that looks like a cross between an iguana and a snake. The book provides a glossary of scientific terms, a list of suggested reading, and maps of the animal's native habitat. [ENC-003052] Blackbirch

Books by Series:
Resources (Grades 3–6)

Paper (1993)
Andrew Langley

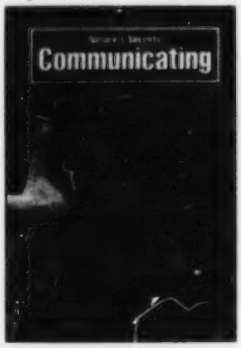
The discussion in this book centers around how paper is made, what it is used for, and how it can be reused. The series introduces the world's most common resources and explains how raw materials are obtained and processed into finished products. [ENC-009027] Raintree Steck-Vaughn

Plastics (1993)
Wayne Jackman

Plastics were invented about 130 years ago and have become an important part of everyday life. This book explores special plastics for spaceships, plastics that protect fire fighters, and plastics that can mend themselves if they are split. [ENC-009024] Raintree Steck-Vaughn

Books by Series:

Nature's Secrets (Grades 2–5)



Communicating (1995)
Paul Bennett
Animals communicate in a variety of ways, including sound signals, visual displays, body language, and scent. Some of the photographs in this book depict mating dances, threat displays by gorillas, and close-ups of insects. [ENC-009214] Raintree Steck-Vaughn

Pollinating a Flower (1994)
Paul Bennett
This book uses photographs and simple text to discuss various ways in which flowers are pollinated. It covers pollination by insects, animals, and wind, as well as by people. [ENC-009208] Raintree Steck-Vaughn

Books by Series:

Super Science (Grades 4–9)

The Super Science Book of Energy (1994)
Jerry Wellington; illustrated by Frances Lloyd
Students compare and contrast different kinds of energy, examine its sources, and learn what can be done to conserve energy. [ENC-009221] Raintree Steck-Vaughn

The Super Science Book of Light (1993)
Graham Peacock and Terry Hudson; illustrated by Frances Lloyd
Students are introduced to the science behind lasers, fiber optics, mirrors, and lenses. They can read about where light comes from, the difference between starlight and sunlight, and how the eye receives light. [ENC-009223] Raintree Steck-Vaughn

Books by Series:

Focus on Disasters (Grades 5–7)

Earthquake (1996)
Fred Martin
This series focuses on natural disasters, explaining how they happen, their effects on people and the environment, and what can be done to prevent future devastation. This volume focuses on earthquakes and illustrates the concept of magnitude. [ENC-008410] Rigby

Weather (1996)
Fred Martin
After defining the layers of the atmosphere, this book goes on to describe how temperature, air pressure, and precipitation are measured and how the data is used to make weather forecasts. [ENC-008407] Rigby

Books by Series:

Animal Opposites (Grades K–2)

Big and Small (1996)
Rod Theodorou and Carole Telford
In this series, students are given facts, color photographs, and drawings about mismatched animal pairs. This book focuses on the difference in size, characteristics, and habitats between ants and elephants. [ENC-008112] Rigby

Fast and Slow (1996)
Rod Theodorou and Carole Telford
This book focuses on the difference in speed between cheetahs and sloths. Other information includes what these animals look like, where they live, what they eat, how they protect themselves, and how they reproduce. [ENC-008113] Rigby

Books by Series:

Curious Creatures (Grades 4–8)

Living Fossils (1992)
Joyce Pope; illustrated by Stella Stilwell and Helen Ward
This book is a guide to animals and plants that have remained unchanged since prehistoric times. [ENC-002293] Raintree Steck-Vaughn

On the Move (1992)
Joyce Pope; illustrated by Stella Stilwell and Helen Ward
Animals adapt to their environments in many ways, including methods of locomotion. This book explores how many different animals move in their environments, from earthworms to cheetahs, and from dolphins to whales. [ENC-002292] Raintree Steck-Vaughn

Books by Series:

The Eyewitness Explorers (Grades K–6)

Human Body (1994)
Steve Parker
This pocket book provides descriptions and colored pictures of the parts and systems of the human body. Also described are human evolution, body shapes and sizes, the importance of food, and maintenance of a healthy body. [ENC-001711] DK Publishing

Seashore (1994)
David Burnie
The seashore and its wildlife are the focus of this book, which features illustrations of the different organisms occupying the cliffs or the shore. Examples include shells, borers and burrowers, and seashore fish. The book also provides activities to help children explore the seashore environment. [ENC-001712] DK Publishing

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Recognizing that "the world of children's literature contains a variety of genres, all of which have appeal to the diverse interests of children, as well as potential for classroom teaching," the National Council of Teachers of English (NCTE) established the Orbis Pictus Award for promoting and recognizing excellence in nonfiction books for children. The name, Orbis Pictus, commemorates the work of Johannes Amos Comenius, *Orbis Pictus—The World in Pictures* (1657), considered to be the first book planned specifically for children.

The award is presented for books published in the previous year: i.e., the 1997 award honors books published in 1996. The entire list of winners from the award's inception in 1990 is provided here. For more information, visit the NCTE Web site (http://www.ncte.org).

The books that ENC has in its collection have ENC numbers after them. Availability information for all titles listed here is included in the Vendor Contact Information section that follows.

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The Life and Death of Crazy Horse by Russell Freedman (Holiday House)

One World, Many Religions by Mary Pope Osborne (Random House)

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Rosie the Riveter: Women Working on the Home Front in World War II by Penny Colman (Random House)

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Safari Beneath the Sea: The Wonder of the North Pacific Coast by Diane Swanson (Little, Brown) [ENC-007843]

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Wildlife Rescue: The Work of Dr. Kathleen Ramsay by Jennifer Owings Dewey (Boyds Mills)

Kids at Work: Lewis Hine and the Crusade Against Child Labor by Russell Freedman (Clarion)

Christmas in the Big House, Christmas in the Quarters by Patricia McKissack & Frederick McKissack (Scholastic)

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Making Sense: Animal Perception and Communication by Bruce Brooks (Farrar, Straus & Giroux)

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Children of the Dust Bowl: The True Story of the School at Weedpatch Camp by Jerry Stanley (Random House)

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Talking with Artists by Pat Cummings (Simon & Schuster)

Come Back, Salmon by Molly Cone (Little, Brown) [ENC-007495]

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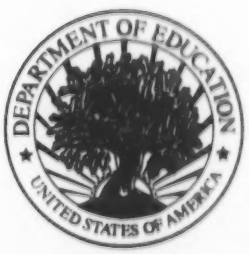

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